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PROCEEDINGS: CONFERENCE IN THE MATTER
OF POLLUTION OF THE NAVIGABLE WATERS OF
MORICHES BAY AND THE EASTERN SECTION OF
GREAT SOUTH BAY AND THEIR TRIBUTARIES.
PATCHOGUE, NEW YORK, SEPTEMBER 20-22 1966

Federal Water Pollution Control Administration
Boston, Massachusetts

1966

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PROCEEDINGS

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Patchogue, New York
September 20-22, 1966

Conference

In the matter of
Pollution of the Navigable
Waters of Moriches Bay
and the Eastern Section of
Great South Bay and their Tributaries



U. S. DEPARTMENT OF THE INTERIOR
Federal Water Pollution Control Administration

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Conference in the Matter of Pollution of
the Navigable Waters of Moriches Bay and the Eastern
Section of Great South Bay, Long Island, New York, con-
vened at 9:50 a.m., on Tuesday, September 20, 1966, at
Felice's Restaurant, Patchogue, New York.

PRESIDING:

Mr. Murray Stein, Assistant Commissioner
for Enforcement, Federal Water Pollution
Control Administration, Department of
the Interior

CONFEREES:

Mr. Dwight F. Metzler, Deputy Commissioner,
State of New York Department of Health,
Albany, New York

Mr. Lester M. Klashman, Regional Director,
Northeast Region, Federal Water Pollution
Control Administration, Department of the
Interior, Boston, Massachusetts

PARTICIPANTS:

Paul DeFalco, Project Director, Hudson-Champlain
and Metropolitan Coastal Comprehensive Water Pollution
Control Project, United States Department of the Interior,
Metuchen, New York

Dr. Hollis S. Ingraham, State Health Commissioner,
Department of Health, State of New York

H. Lee Dennison, County Executive, Suffolk County,
New York

William L. Burns, Assemblyman, Seventh Assembly
District, State of New York

Mark Abelson, Regional Coordinator, United States
Department of the Interior

Frank L. Panuzio, Chief of Engineering Division
of New York District, Corps of Engineers

Ralph J. VanDerwerker, Program Director, Environ-
mental Engineering and Food Protection, United States Public
Health Service, Department of Health, Education, and Welfare,
New York

George Morrison, Regional Shellfish Sanitation
Consultant, Shellfish Sanitation Branch, Division of
Environmental Engineering and Food Protection, United States
Public Health Service, Department of Health, Education, and
Welfare

2369 J. F. 11/14

PARTICIPANTS (CONTINUED):

F. W. Montanari, Assistant Commissioner, New York
State Conservation Department, Division of Water Resources

Robert D. Hennigan, Director of Water Resource
Services, State of New York Department of Health

Edward Morette, President, New York State Conserva-
tion Council

David H. Wallace, Director, Bureau of Marine
Fisheries, State of New York Conservation Department

Dr. George E. Leone, Commissioner, Suffolk County
Department of Health

August Stout, Jr., Chairman, Moriches Inlet
Stabilization Committee

Elizabeth M. Wallace, Director, Oyster Institute
of North America

Hon. Robert F. Kennedy, United States Senator from
the State of New York

J. M. Catterson, Jr., Chairman, Brookhaven Town
Oceanography Committee

Mrs. James R. Sherard, Vice President, League of
Women Voters, Town of Islip; Chairman, Water Resources
Committee, Suffolk County Council

E. E. Henkel, Representing The Suffolk County
Sewer Agency

PARTICIPANTS (CONTINUED):

Emanuel H. Licht, Representing the Feather
Cooperative Marketing Association

Nelson D. Houck, General Manager, Long Island
Duck Farmers Cooperative, Inc.

William F. Cosulich, Consulting Engineer, Syosset,
New York

Maurice Barbash, Citizens' Committee for the
Fire Island National Seashore

Hugh Mercer, General Manager, Bluepoints Company,
Inc., West Sayville, Long Island, New York

Edwin S. Furman, President, Southampton Town
Baymen's Association, Inc.

Dr. George H. Vanderborgh, Sr., Representing the
Oyster Institute of North America and the Long Island Shell-
fish Farmers, Inc.

Adrian Hoek, Representing the Great South Bay
Baymen's Association

Robert Vojvoda, Supervisor, Town of Riverhead

Charles R. Dominy, Supervisor, Town of Brookhaven

OTHERS IN ATTENDANCE:

Mrs. George Baker, League of Women Voters,
Bellport, Long Island

Harry Bedell, Mayor, Village of Bellport

Quentin Bennett, New York State Conservation
Department

Ronald Blau, Village Clerk, Patchogue

Robert Branges, National Park Service, United
States Department of the Interior

Dr. Harry Brenowitz, Adelphi University,
Adelphia Institute of Marine Science

John S. Bucalo, President, Northern Brookhaven
Civic Council

Charles Buelتمان, Soap and Detergent Association

John Borak, Moriches, Box 67

Edward Buyer, League of Women Voters, Township of
Islip

Stanley Chornoma, Duck Farmer

Coolidge Churchill, Adelphi University

Robert Clark, Attorneys for Bluepoints Company,
VanBrunt & Clark

Morris Colen, United States Corps of Army
Engineers, New York District

Romeo Contois, Fish and Game, Ticonderoga, New York

P. Costigan, Assemblyman

OTHERS IN ATTENDANCE (CONTINUED):

Lloyd Corwin, Crescent Duck Farm

George Cowherd, Interstate Sanitation Commission

Samuel Cross, Suffolk County Department of Public
Works

Herbert Davids, Suffolk County Department of Health

Robert H. Davis, United States Fish and Wildlife
Service, Division of River Basin Studies

Edward DePiazzy, DePiazzy Duck Farm, Inc.

L. A. Devenpeck, Suffolk County

Sumner Dole, Fish and Wildlife Service, Bureau of
Sport Fisheries and Wildlife

C. V. Doncaster, Long Island State Park Commission

Frank Deak, Duck Farm, Riverhead, New York

L. C. Eckart, Suffolk County Department of Public
Works

Barney Evans, Suffolk County Department of Public
Works

Gary A. Evans, Bureau of Sport Fisheries and
Wildlife

Mickey T. Field, C&R Duck Farm, Westhampton, Long
Island

H. B. Flower, Frank M. Flower & Sons, Bayville,
Long Island

John M. Flynn, Suffolk County Health Department

OTHERS IN ATTENDANCE (CONTINUED):

Jack Foehrenbach, New York State Conservation
Department

John Foley, Township of Brookhaven

Richard Forster, State Health Department

Bruce Foxworthy, United States Geological Survey,
Water Resources Division

Anthony Gaeta, Administrative Assistant to
Congressman Murphy

Howard Gates, New York State Health Department

T. R. Glenn, Interstate Sanitation Commission

William Graner, Suffolk County Health Department

Seymour Gross, Delaware River Basin Commission

Walter G. Harris, Fish and Wildlife Service,
Bureau of Sport Fisheries and Wildlife

John E. Harrison, New York State Health Department

Charles Hart, Shellfish, Inc.

Merrill Hohman, Hudson-Champlain Project, Federal
Water Pollution Control Administration, United States
Department of the Interior

Mrs. W. Hetzel, Locust Grove Poultry Farms

Dorothy Howlett, League of Women Voters, Yardley,
Pennsylvania

Herbert Howlett, Delaware River Basin Commission

OTHERS IN ATTENDANCE (CONTINUED):

H. T. Hubbard, Whitebrook Duck Farm, Riverhead,
Long Island

R. B. Hudson, President School Board, Greenport,
Long Island

Leo Johnson, Civil Defense, Patchogue, Long Island

Malcolm Kallus, Department of the Interior,
Eastern Operations Office, Federal Water Pollution Control
Administration

R. M. Kammerer, Commissioner of Public Works,
Suffolk County

Jack Kanas, Beacon Feeds, Cayuga, New York

Joseph Karban, United States Department of the
Interior, National Park Service

F. Kittrell, TA&I Section, Sanitary Engineering
Center, Cincinnati, Ohio

Halvor Koch, Conservation Department, State of
New York

Bernard Kovner, Long Island Duck Farmers
Cooperative, Inc.

Adam Kanoes, East Moriches, Long Island

Victor Kostuk, Long Island Duck Farmers Coopera-
tive, Inc.

Mrs. D. Larson, League of Women Voters, New York
State

OTHERS IN ATTENDANCE (CONTINUED):

W. M. Lawrence, New York State Conservation
Department

Leszkowicz ----, Duck Farm, Brookhave, Long Island
Paul Licht, Feather Sales Agency, Speonk, Long
Island

John Like, Counsel, Citizens Committee, Fire
Island National Seashore

Mrs. M. Like, Citizens Committee of National
Seashore

Frank Lomaga, Springwater Duck Farm
Harold Lukert, Locust Grove Poultry Farm
Donald MacCormack, League of Women Voters, Township
of Islip

J. MacMillan, President, Long Island Fishermen's
Association

J. McCabe, Consulting Engineer, Garden City,
New York

Louis McLean, Engineer, Township of Brookhaven
D. McNicol, Fire Island Sea Clam Company, Inc.
Joseph Monkoski, National Park Service
Thomas Mulligan, Hydrosience, Inc., Leonia,
New Jersey

Anna Pachalk, Duck Farmer, Speonk, Long Island

OTHERS IN ATTENDANCE (CONTINUED):

Edward Pellaetis, Congressman Murphy's Office

Howard Phillips, C&R Duck Hatching

Cornelius Poillon, Long Island Fishermen's
Association

Harry Reeves, Southampton Baymen's Association,
Inc.

Robert Reid, Councilman, Town of Brookhaven

Paul Resnick, Hudson-Champlain Project, Project
Information Officer, Federal Water Pollution Control
Administration, Department of the Interior

W. Reynolds, Mayor, Westhampton Beach

Henry Schmidt, National Park Service, Fire Island
National Seashore

Walter Seamaschunk, Duck Farmer, Riverhead, New York

Robert Sheppard, Suffolk County Health Department

Mrs. Robert Sheridan, Assistant to Supervisor

Charles Dominy, Town of Brookhaven

Nelson Slager, Fire Island Fisheries, Inc.

Alvin Stein, Feather Sales Agency of Long Island,
Speonk

Randolph Stelle, New York State Conservation
Department, Division of Water Resources

Keith Stewart, Federal Water Pollution Control
Administration, Cincinnati, Ohio

OTHERS IN ATTENDANCE (CONTINUED):

Gerald Suloff, Fire Island National Seashore,
Department of the Interior

John Suydam, National Boatmen's Association,
Lindenhurst, New York

Stanley Thuma, Baymen's Association, Great South Bay

H. S. Tubiash, Branch of Shellfisheries, Washington,
D. C.

Robert Tuck, Feed Manufacturer

Alfred Tucker, New York State Conservation Department

Harold Udell, Department of Conservation and Water-
ways, Hempstead, Long Island

G. Vanderborgh, Jr., Long Island Shellfish Farmers

Robert Villa, Suffolk County Department of Health

David Wallace, New York Conservation Department

Kenneth Walker, Deputy Project Director, Hudson-
Champlain Project, Federal Water Pollution Control Administra-
tion, Department of the Interior

Wesley J. Warner, Riverhead, New York

Olin Warner, Duck Grower, Calverton, New York

Harry Wartur, Leonard Wegman Company, Engineers

J. R. Welker, Southampton College of LIV

R. E. Weston, League of Women Voters, Bellport,
Long Island

OTHERS IN ATTENDANCE (CONTINUED):

Mrs. Lucy Whittaker, Oyster Institute

Leroy Wilcox, Duck Farmer

J. C. Willis, Islip, New York

R. F. Wilson, Oakdale, Long Island, Adelphia
University

Robert Wuesterfeld, United States Corps of
Army Engineers, New York District

Opening Statement - Mr. Stein

P R O C E E D I N G S

OPENING STATEMENT

BY

MR. MURRAY STEIN

MR. STEIN: The conference is open.

→ This conference in the matter of pollution of the navigable waters of Moriches Bay and the eastern section of Great South Bay and their tributaries (Long Island, New York) involving the State of New York and the Federal Water Pollution Control Administration, is being held under the provisions of Section 10 of the Federal Water Pollution Control Act.

Under the provisions of the Act, the Secretary of the Interior is authorized to call a conference of this type when he finds that substantial economic injury results from the inability to market shellfish or shellfish products in interstate commerce because of pollution subject to abatement under the Federal Act, and action of Federal, State, or local authorities. ↗

Opening Statement - Mr. Stein

I think today we are witnessing one of the first cases brought by the Secretary of the Interior -- we have not been in the Department of the Interior too long -- and certainly the first case brought under the shellfish provision.

While we have had vast experience in dealing with pollution cases under other provisions of the Act, the shellfish provisions of the Act were enacted in the last amendment in 1965. This is the first time that these provisions have been invoked.

The purpose of the conference is to bring together the State water pollution control agency, representatives of the Federal Water Pollution Control Administration, and other interested parties to review the existing situation, the progress which has been made, to lay a basis for future action by all parties concerned, and to give the State, localities, and industries an opportunity to take any indicated remedial action under State and local law.

The conference technique is rather an old one. It is used informally by many State agencies in the normal conduct of their business in the field of water pollution control, and I know it has been used extensively and successfully by New York. The conference system was proposed by the United States Supreme Court as long ago as 1921 in

Opening Statement - Mr. Stein

the famous case of New York versus New Jersey, involving interstate pollution. I would like to quote from this decision:

"We cannot withhold the suggestion, inspired by the consideration of this case, that the grave problem of sewage disposal by the large and growing population living on the shores of New York Bay is one more readily to be most wisely solved by cooperative study and by conference and mutual concession on the part of representatives of the States so vitally interested in it than by proceedings in any court, however constituted."

We strongly support the conference technique and we measure our success by the problems which are solved at the conference table, rather than in court.

I think between 1921 and 1966 this is particularly applicable, because now we have this large and growing population, not only on New York Bay, but on Moriches Bay and Great South Bay. I think this is just a question of population, industry and civilization moving forward.

As specified in Section 10 of the Federal Water Pollution Control Act, the Secretary of the Interior has notified the official State water pollution control agency,

Opening Statement - Mr. Stein

which is the New York State Department of Health, of this conference. This conference is between the official State agency and the Federal Water Pollution Control Administration. The New York State Department of Health may bring whomever it wishes to the conference and have them participate in the conference. However, only the representatives of the official State agency and the Federal Water Pollution Control Administration constitute the conferees.

The State of New York has designated as its conferee for this conference Mr. Dwight Metzler, Deputy Commissioner, New York State Department of Health. Mr. Lester M. Klashman of the Federal Water Pollution Control Administration's Northeast Regional Office, with headquarters in Boston, Massachusetts, has been designated as conferee for the Federal Government.

My name is Murray Stein. I am from Washington, D. C., headquarters of the Federal Water Pollution Control Administration.

At this point I would like to say I am delighted to see both of these conferees, because the professionals in water pollution control for many years worked in a relatively small gambit, and I am surrounded by two pro's. I have worked with both of these men in various parts of the country since the end of World War II, when we first began

Opening Statement - Mr. Stein

to get active in water pollution control. I am really delighted to be with them again in Long Island.

Both the State and Federal governments have responsibilities in dealing with water pollution control problems. The Federal Water Pollution Control Act declares that the States have primary rights and responsibilities for taking action to abate and control pollution. Consistent with this, we are charged by law to encourage the States in these activities.

At the same time, the Secretary of the Interior is charged by law with specific responsibilities in the field of water pollution control in connection with pollution of interstate and navigable waters. The Federal Water Pollution Control Act provides that pollution of interstate or navigable waters, whether the matter causing or contributing to the pollution is discharged directly into such waters, or reaches such waters after discharge into a tributary, which endangers the health or welfare of any persons, shall be subject to abatement.

The October 1965 amendments to the Federal Water Pollution Control Act additionally empower the Secretary of the Interior to initiate enforcement procedures whenever he finds that substantial economic injury results from the inability to market shellfish or shellfish products in

Opening Statement - Mr. Stein

interstate commerce because of pollution of interstate or navigable waters, and the action of Federal, State or local authorities.

This conference on pollution of the navigable waters of Moriches Bay and the eastern section of Great South Bay and their tributaries, as I have mentioned, is the first to be held under these shellfish provisions of the Act.

The conference will cover the effects on interstate commerce caused by pollution of the shellfish beds in Moriches Bay and the eastern section of Great South Bay. We expect the conference will be useful in providing a clear picture of the problem, delineating the progress which has already been accomplished, and in indicating what needs to be done to correct the pollution problem in these navigable waters.

All the conferees will be called upon to make statements. The conferees, in addition, may call upon participants they have invited to the conference to make statements. At the conclusion of each statement, the conferees and myself will be given an opportunity to comment or ask questions. This procedure has in the past proven effective in developing the problem or reaching equitable solutions.

I would like to point out we do not entertain

Opening Statement - Mr. Stein

comments or questions from the floor. If we did, we would have a mass meeting, and probably be here much longer than you would want us to be here, so save your comments for your statements. You will be given a full opportunity to make a statement on any portion of the problem you think relevant. We are here to hear you fully and give it every consideration.

At the end of all the statements, we will have a discussion among the conferees and try to arrive at a basis of agreement on the facts of the situation presented here. Then we will attempt to summarize the conference orally, giving the conferees, of course, the right to amend or modify the summary.

Under the Federal law, the Secretary of the Interior is required at the conclusion of the conference to prepare a summary of it which will be sent to all the conferees. The summary, according to law, must include the following points:

1. Occurrence of pollution of navigable waters subject to abatement under the Federal Act.
2. Adequacy of measures taken toward abatement of pollution; and,
3. Nature of delays, if any, being encountered in abating the pollution.

Opening Statement - Mr. Stein

The Secretary is also required to make recommendations for remedial action if such recommendations are indicated.

Now, a word about the procedure governing the record of the conference. A record and verbatim transcript of the conference is being made by Mr. Al Zimmer. This is made for the purpose of aiding us in preparing a summary, and also providing a complete record of what is said here.

We will make copies of the summary and transcript available to the official water pollution control agency of New York.

We have found that, generally, it is best that people who wish transcripts should request them through their State agency, rather than come directly to the Federal Government. The reason for this is that we would prefer people who are interested in the problem to follow their normal relations in dealing with the State agency rather than the Federal Government on these matters, when the conference has been concluded. This has worked successfully in the past and we will be most happy to make this material available to New York for distribution.

I would suggest that all speakers and participants other than the conferees making statements come to the lectern and identify themselves for purposes of the record.

Opening Statement - Mr. Stein

Also, if you have any prepared statements, it would be appreciated if you gave copies to the conferees and the reporter before making your statement. On this procedure, the first order of priority in making your statement available is to the reporter. This can be quite a chore by the end of the day if you do not have those statements to follow, and you have to take every word down.

So, in order to expedite this, we would appreciate any written statements being given first to the reporter and then to the conferees.

With that, we would like to call on Mr. Klashman, the Federal conferee.

Mr. Klashman.

MR. KLASHMAN: Thank you, Mr. Stein.

Mr. Paul DeFalco, Project Director for the Hudson - Champlain and Metropolitan Coastal Comprehensive Water Pollution Control Project, with headquarters at Metuchen, New Jersey, will make the first presentation for the Federal Government.

Mr. DeFalco.

Paul DeFalco

STATEMENT OF PAUL DeFALCO, PROJECT
DIRECTOR, HUDSON-CHAMPLAIN AND METRO-
POLITAN COASTAL COMPREHENSIVE WATER
POLLUTION CONTROL PROJECT, UNITED
STATES DEPARTMENT OF THE INTERIOR,
METUCHEN, NEW JERSEY

MR. DeFALCO: I would like to enter the state-
ment in full into the record. The conferees already have
copies of the statement, and I will read portions of it.

I. DESCRIPTION OF AREA

Geography

The area under consideration for this report
lies on the south shore of Long Island, New York. It con-
sists of Moriches Bay, west of Westhampton Beach, and the
eastern end of Great South Bay, east of a line connecting
Blue Point and Water Island. Included are Patchogue Bay,
Bellport Bay and Narrow Bay, the connecting waterway between
Great South Bay and Moriches Bay. Also included are the
coves, rivers and estuaries tributary to the main bays.

Paul DeFalco

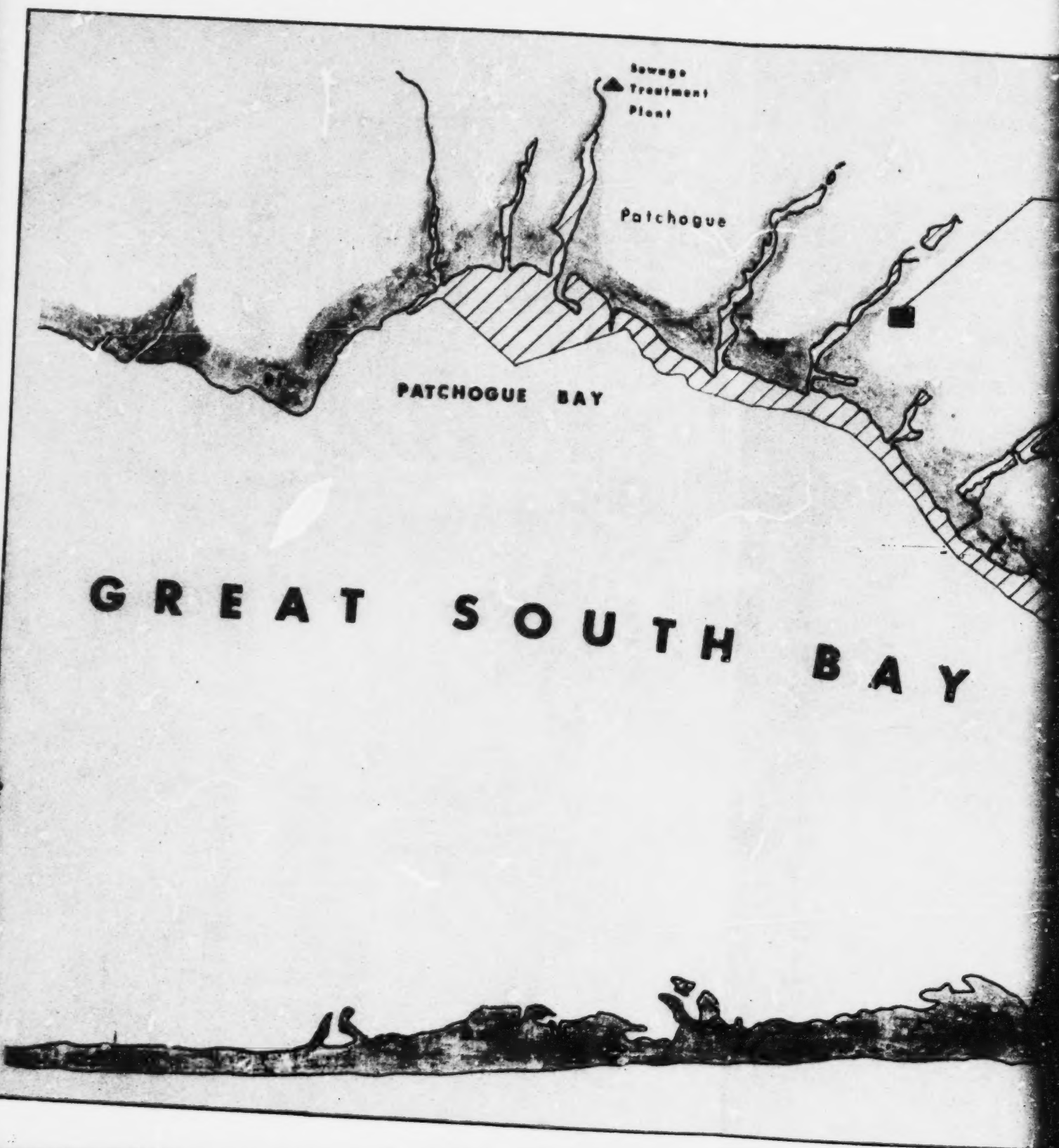
Figure 1 shows the study area.

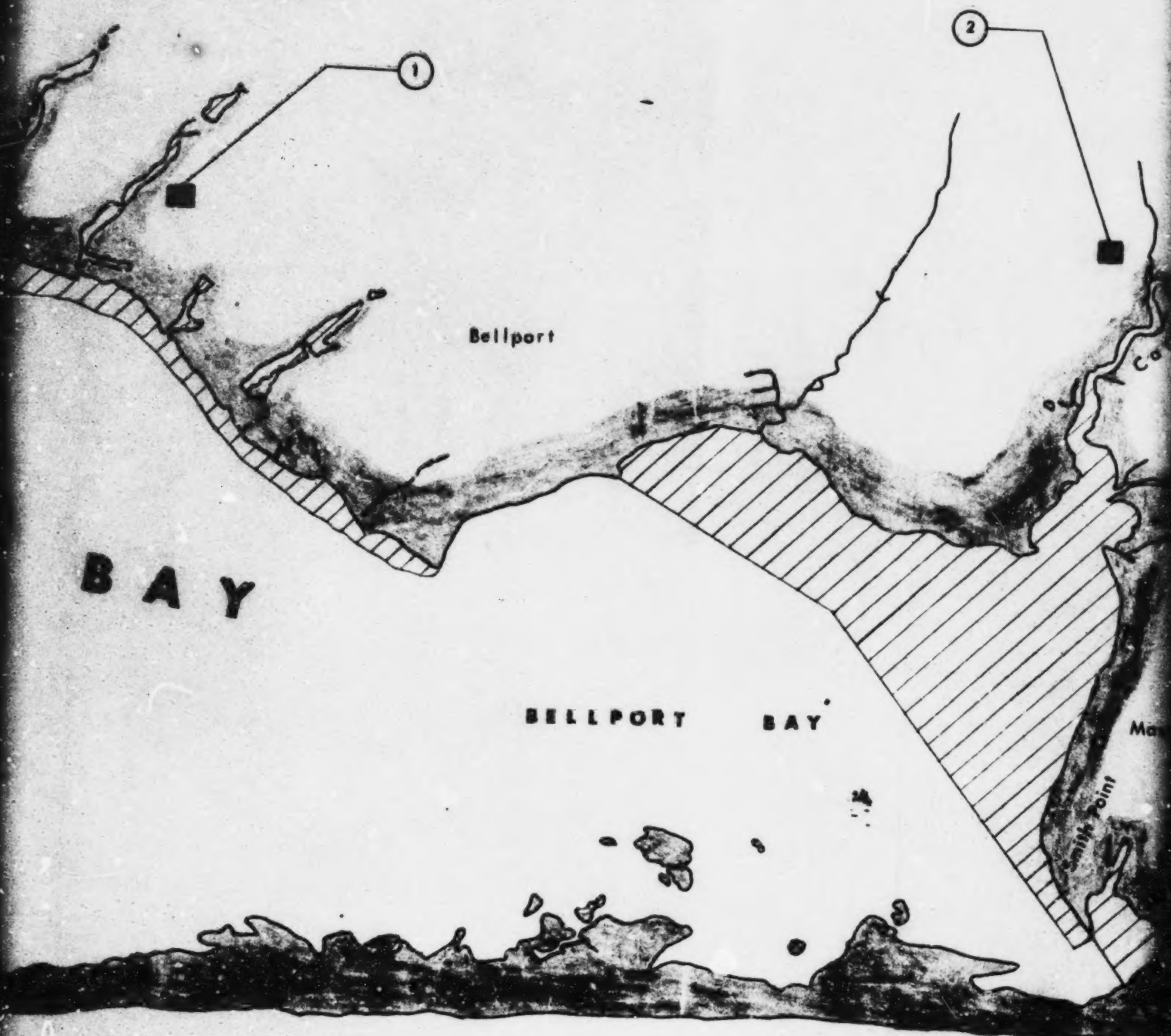
MR. STEIN: Mr. DeFalco, I would like to point out here, just at the start -- and this will apply to everybody -- the exhibits and maps in the transcript will appear in black and white, not in color. It would be helpful for everyone in making his presentation if he avoided referring to color, when describing the exhibits, if the exhibits should happen to be in color. When someone picks up the transcript it does not make much sense to talk about the "green" portion of the map when the fellow is going to look at a black and white map.

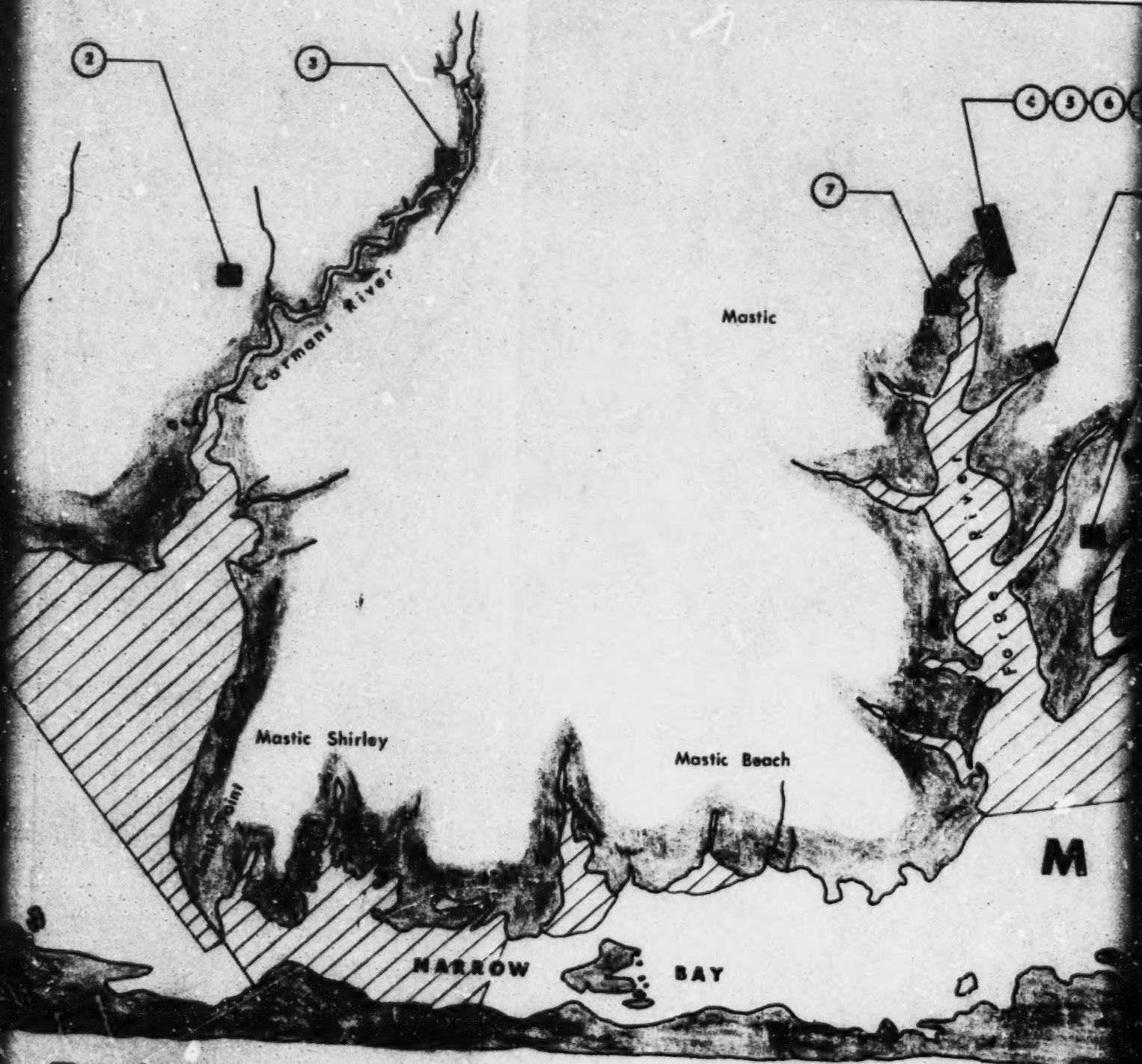
MR. DeFALCO: Thank you.

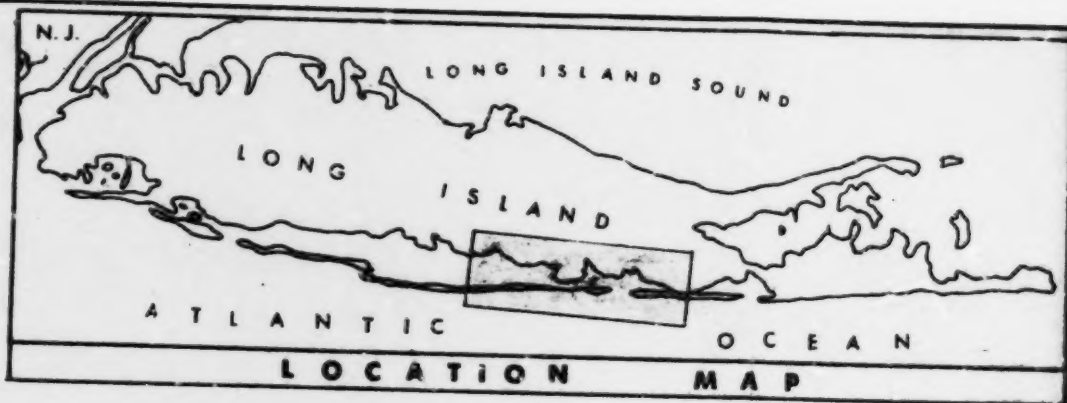
MR. STEIN: All right.

MR. DeFALCO: Great South Bay and Moriches Bay are separated from the Atlantic Ocean by a narrow sand bar, in places only a few hundred yards wide. Both bays are extremely shallow, varying in depth from one to 11 feet, with a mean depth of four feet. Moriches Bay is nine miles long and varies from one to two miles in width. Great South Bay, in its entirety, is 24 miles long, averages three miles in width, and has an area of 95 square miles. That portion of Great South Bay included in this report is eight miles long and two to four miles wide.









4 5 6 8

9

11

10

12 13 14 15 16 17 18

Center Moriches

19 20

East Moriches

21

22

23

Sealuck Cove

M O R I C H E S

E A N

Moriches Inlet

POLLUTION OF NAVIGABLE WATERS
OF MORICHES BAY AND EASTERN SECTION
OF GREAT SOUTH BAY

STUDY AREA MAP

U. S. DEPARTMENT OF THE INTERIOR

FEDERAL WATER POLLUTION CONTROL ADMINISTRATION

HUDSON-CHAMPLAIN AND METROPOLITAN COASTAL

COMPREHENSIVE WATER POLLUTION CONTROL PROJECT

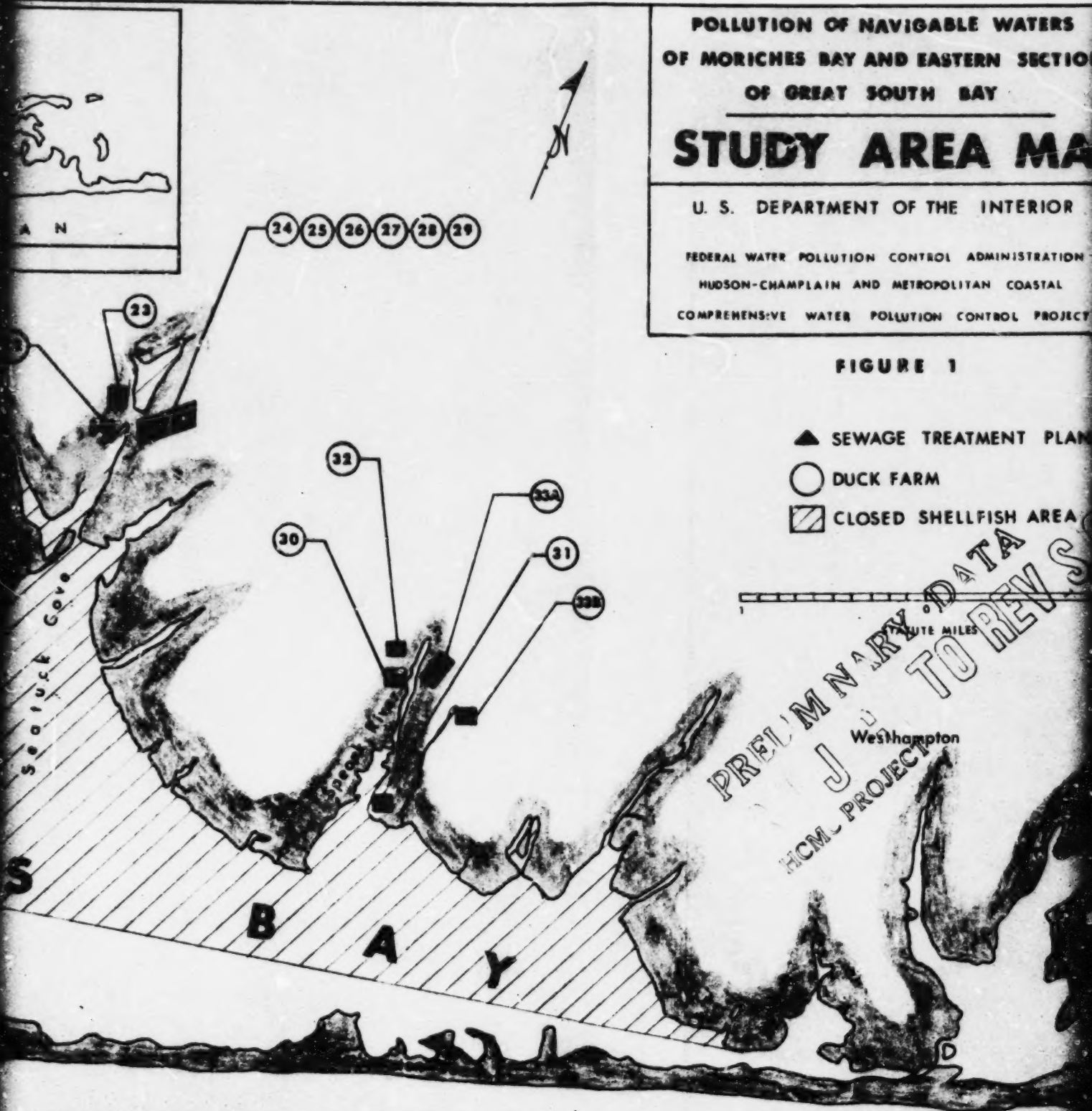
FIGURE 1

- ▲ SEWAGE TREATMENT PLANT
- DUCK FARM
- ▨ CLOSED SHELLFISH AREA

SCALE IN MILES

PRELIMINARY DATA
JULY 1968
HCM PROJECT
TO REVISE

Westhampton



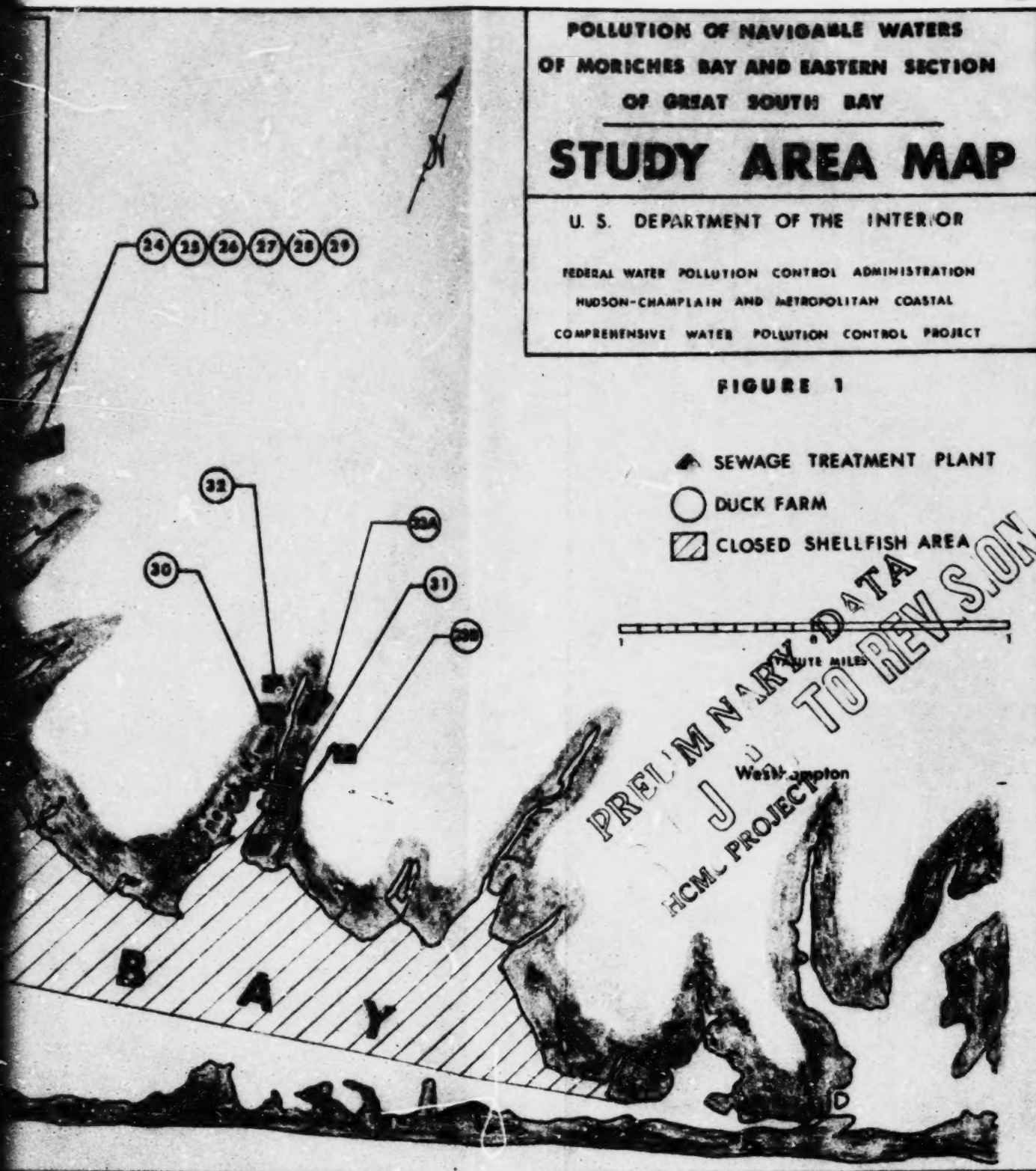
POLLUTION OF NAVIGABLE WATERS
OF MORICHES BAY AND EASTERN SECTION
OF GREAT SOUTH BAY

STUDY AREA MAP

U. S. DEPARTMENT OF THE INTERIOR

FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
HUDSON-CHAMPLAIN AND METROPOLITAN COASTAL
COMPREHENSIVE WATER POLLUTION CONTROL PROJECT

FIGURE 1



Paul DeFalco

Population and Economy of the Area

The study area lies in the towns of Brookhaven and Southampton in Suffolk County. These towns are essentially rural in character and are dotted both inland and along the shore by small incorporated villages and unincorporated areas. The townships have experienced an upsurge in population growth in recent years. In the period 1950-1961, the population of the town of Brookhaven increased from 44,522 to 114,780, while that of the town of Southampton increased from 17,013 to 28,467 people. During this same decade, the entire Suffolk County experienced a 149 percent increase in population, from 276,129 to 697,462.¹ The population boom in Suffolk County has continued, with estimates of 756,000 by 1963 and 950,000 by the end of 1965². These figures indicate the rapid growth experienced on Long Island as people have moved farther from New York City.

Land use in the study area is mainly residential, recreational and agricultural. There are many summer homes along the ocean and bay shores, and a number of public and private bathing beaches are maintained throughout the area. Smith Point County Park, located on Great South Beach between Great South Bay and Moriches Bay, is part of the long narrow sand bar lying to the south of Great South Bay which constitutes Fire Island National Seashore.

The area is well known for both produce and poultry. Potatoes, cauliflower, asparagus, tomatoes, lima beans and strawberries are the chief crops. The Long Island duck has become a household word throughout the country. These ducks are raised on farms lining the shores of the rivers and inlets along the mainland. In 1965, there were 39 active duck farms in Suffolk County². Thirty-two of these, producing more than three million ducks per year, are located in the study area.

II. HYDROGRAPHY

Although the annual rainfall in Suffolk County averages 43 inches, due to the small size of the watershed there are no major fresh water streams discharging into the bays under consideration.³ However, there is a large groundwater reservoir under all of Long Island. According to the U. S. Geological Survey, there is a natural discharge from this subsurface reservoir, which occurs through a seaward movement of groundwater and some surface streamflow. As a result of the limited surface runoff, there are only small volumes of fresh water which enter Moriches and Great South Bays. Enough sea water enters through the Fire Island and Moriches Inlets to maintain the salt distribution in the bays but the volumes of new ocean water available for mixing in each tidal cycle are extremely small away from

the inlets.⁴

The main circulation in the two Bays appears to result from the progressive nature of the tidal wave, which because of the shallow depths and differing lengths of the two bays causes hydraulic currents in the narrow connecting channels. When both Fire Island and Moriches inlets are open, the water movement is easterly from Great South Bay into Moriches Bay. When Moriches Inlet is closed due to silting, water movement is reversed. One series of measurements, taken in July 1950 when both inlets were open indicated that about 20 million cubic feet of water moves from Great South and Bellport Bays into Moriches Bay during one tidal cycle.⁵

This tidal circulation is so limited that wind induced currents can nullify or even reverse the flow. In November 1951, for example, a persistent wind augmented the flow between the two Bays for four successive days, and moved the equivalent of two-thirds the volume of Moriches Bay west into Bellport Bay. Undoubtedly, part of this movement was due to the fact that Moriches Inlet was closed so that the normal net tidal flow was westerly.⁵

During the summer, the prevailing winds are light and westerly,⁶ inducing circulation patterns which augment the normal tidal circulation. As a result, water

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from Great South Bay is transferred to Bellport Bay, increasing the hydraulic head on the Smith Point end of the narrows and moving water into Moriches Bay. This same combination of tidal hydraulics and prevailing winds then results in the movement of Moriches Bay water east through the Potunk Point Narrows into Shinnecock Bay.⁵

The maximum water current is eight feet per second through Fire Island Inlet and six feet per second through Moriches Inlet. The total volumes per tidal cycle flowing through these inlets are 2.0 billion and 0.2 billion cubic feet, respectively.^{5,7} There is a net flow seaward through Moriches Inlet, which has been measured as about 18 million cubic feet per tidal cycle.⁵ In the open bays, the maximum tidal current is one-half a foot per second, and the east-west tidal excursion is of the order of 1.5 miles.⁸ The few measurements of net drift that have been made indicate upper values of about one mile per day. Flushing times of four to ten days have been estimated for the western portions of Great South Bay.⁴ The mean tidal range is 4.1 feet at Fire Island Inlet and 2.9 feet at Moriches Inlet, and decreases to 0.8 feet at Bellport and 0.5 at Mastic Beach. Maximum reported storm tide (November 1950) at Fire Island Inlet was 9.4 feet above mean sea level.⁷

In general, this tidal circulation is sufficient

to prevent stratification in the open bays, but not near the inlets and rivers. For example, the water is definitely stratified in the upper tidal portion of the Forge River, a factor which sometimes contributes to poor water quality.^{9,10.}

Water temperatures range from freezing to about 30°C. In summer, the highest temperatures are found in the extensive shallow areas and in the upper portions of the river estuaries.^{6,9}

Salinities range from close to zero in the upper portions of the river estuaries to more than 30 parts per thousand in the open portions of the bays.^{6,9}

The weak circulation in these bays results in a limited amount of available dilution water. This unsatisfactory condition for waste assimilation is worsened by the tendency of winds and currents to confine wastes and waters to the eastern end of Great South Bay, at the farthest possible point from sources of clean dilution water. Hence, due to these circulation problems, the bays are not suited for the assimilation of large pollution loads.

III. WATER USES IN THE AREA

Domestic Water Supply

The primary source of water supply for all purposes in Suffolk County is ground water, generally obtained from individual wells. These same ground waters also provide water for agricultural irrigation and for operating duck farms. Almost 20 billion gallons of ground water were withdrawn from Suffolk County's underground reservoirs in 1956.¹¹ This withdrawal is accompanied by a high return rate. The U. S. Geological Survey has estimated that for 1961 in Suffolk County, "probably 80 percent of the water pumped from public, private and industrial wells is returned to the ground."

Bathing

The waters of Moriches and Great South Bays are used extensively for recreational bathing at both public and private beaches. In 1965, the Suffolk County Department of Health issued permits for 108 bathing beaches. There are also many miles of privately owned shore line where the waters are used for bathing. In 1966, a portion of the sand bar separating Great South Bay from the ocean was dedicated as Fire Island National Seashore. With this facility available, it is expected that recreational bathing will increase as an influx of tourists begins to enjoy this site.

Finfishing

The area serves as an important commercial fishing source. In 1961, a total of 354,000 pounds of fish were landed in Great South Bay and Moriches and Shinnecock Bays.¹

Sport fishing is also very popular in the area. Many deep sea fishing boats operate from the various marinas, and private boats of all sizes are used for fishing.

Shellfishing

Shellfish, primarily hard clams, are harvested extensively from the area. In 1961, more than two million pounds of shellfish were taken from the area.¹ At one time, the area supported an extensive oyster harvest, but in recent years the crop of oysters has been reduced and the oyster is no longer a significant factor in the economy of the area.

Boating

The dramatic increase in recreational boating

activities on the national level has been reflected along the entire Long Island shore. As increasing numbers of persons have more leisure and income, there has been an accompanying growth in boating, so that there is now an abundance of all types and sizes of pleasure boats using the waters of Great South Bay and Moriches Bay. Nine yacht clubs and numerous marinas dot the shoreline from Patchogue Bay to Westhampton.

Duck Farming

The operators of duck farms make extensive use of the waters of the rivers, creeks, coves and estuaries, which drain into the bays. These bodies of water and the adjacent shore areas are fenced and diked to form holding pens which provide the ducks with access to both land and water. With traditional methods of duck farming, the majority of the wastes are carried away from the pens by surface water that is diverted through the runs, or by ground water that is either pumped into the runs or infiltrates into them. Water usage at typical duck farms ranges from 14 to 120 gpd per duck. At the larger farms, water usage can be in the order of 2-3 mgd.¹² In some instances dry farming techniques have been adopted in order to reduce the water requirements.

IV. SOURCES OF WASTES

The waters of the study area serve as a receiving body for the discharge of wastes from extensive duck farms, municipal and domestic sewerage systems, industrial operations, recreational boats, and surface run-off and land drainage.

Duck Farms

There are 34 duck farms, two of which are reportedly out of business, located on waters tributary to Moriches, Bellport and Patchogue Bays. The location of the farms is shown in Figure 1. The owners and the reported annual production are given in Table I.

Table I

DUCK FARMS TRIBUTARY TO STUDY WATERS¹²

<u>Location No.*</u>	<u>Owner</u>	<u>Yearly Duck Production</u>
Trib. to Bellport Bay:		
1	Gallo Brothers	250,000
2	Leskowicz	200,000
3	Carmen River Farm	200,000
Total to Bellport Bay:		650,000

Table I (continued)

<u>Location No.*</u>	<u>Owner</u>	<u>Yearly Duck Production</u>
Trib. to Moriches Bay:		
4	Paul Choenoma	50,000
5	De Piazzy	100,000
6	Jucglieliewicz	150,000
7	Swift Stream Duck Farm	100,000
8	Borak Farm	100,000
9	Lukert	150,000
10	Hallock Brookside	120,000
11	Forge River Duck Farm	100,000
12	Harry A. Smith	50,000
13	Walter R. Smith	Out of business
14	Robert H. Smith	60,000
15	Stanley Chornoma	80,000
16	Chi-Dux Duck Farm	90,000
17	Joseph Podlaski	50,000
18	Vigliotta & Son	60,000
19	Adam Soroka	50,000
20	Adam Kanas	60,000
21	Breezy Acres	60,000

Table I (continued)

<u>Location No.*</u>	<u>Owner</u>	<u>Yearly Duck Production</u>
Trib. to Moriches Bay:		
22	Zygmunt Babinski	50,000
23	Chester Massley	50,000
24	Big Seatuck Duck Farm	90,000
25	Antone Anczurowski	Out of business
26	Peter Kostuk	150,000
27	Tuttle Brothers	80,000
28	Eastport Spec.Duck Waste Dist	350,000
29	Spring Water Duck Farm	80,000
30	Anna Pacholk	50,000
31	Stephen Kuczma	70,000
32	Leroy Wilcox	50,000
33A)	C & R Duck Farm	Unknown (Breeders)
33B)		
Total to Moriches Bay		2,450,000
Total to Bellport & Moriches Bays:		3,100,000

*As shown on Figure 1.

In large scale duck production, holding pens and dikes are built across the stream or other bodies of water and on the adjacent shore. The ducks move freely

between the land and water, depositing waste directly into the stream as well as on the banks. During rainfall, the accumulated organic matter is washed into the stream. Even when the shoreline droppings are raked up, some organic matter is retained by the soil and washed to the water area by rains.¹²

A number of studies have been conducted of the characteristics of the wastes associated with duck farms. The results of several such studies by the New York State Department of Health are presented in Table II.

Table II

CHARACTERISTICS OF RAW DUCK FARM WASTES^{13,14,15}

<u>Characteristic</u>	<u>Ranges Reported lbs/day/1000 ducks</u>
BOD	20.6 - 37
Total Solids	163
Suspended Solids	96
Total Nitrogen	5.7 - 6.2
Kjeldahl Nitrogen	8.2
Total Phosphate	6.8 - 12.4
Soluble Phosphate	2.6 - 6.9

The volume of waste flows from duck farms varies widely. A study by Gates¹⁶ in 1959 reported water

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use varied from four to 96 gallons per duck. The same study showed coliform concentrations in the effluent ranged from 5.8×10^6 to 58×10^6 MPN per 100 ml. Cosulich ¹² found the water use at five selected farms ranged from 14 to 120 gallons per day per duck, and that coliform concentrations were of the same order of magnitude as reported by Gates.

No measurements have been made of the total waste loadings from duck farms. Table III presents estimated loads, based on the data cited above, and on duck production figures shown in Table I. These loads were calculated on the basis of a nine month (March through November) duck production season and an average duck life of seven weeks.

Based on the data in Table III, the duck farming industry represents a source of 14,000 lbs per day BOD; 3,300 lbs per day total nitrogen; 5,600 lbs per day total phosphate; and 55,600 lbs per day of the suspended solids in a total waste flow of 33 MGD. In addition, these wastes contribute 25 million billion MPN coliform per day to the receiving waters. It is recognized that these loadings are for raw wastes and that some attempts have been made to treat the waste at selected farms. By 1965, all of the duck farms in the area had settling lagoons in operation for removal of duck waste solids. These existing treatment

Table IIIESTIMATED LOADS FROM DUCK FARM WASTES

Tributary To:	No. Farms	Yearly Production	Ave. Duck Population (1)	Flow MGD (2)	MPN Coliform Per Day (3)
Bellport Bay	3	650,000	116,700	7.0	5×10^{15}
Moriches Bay	29	2,450,000	439,800	26.4	20×10^{15}
Study Area	32	3,100,000	556,500	33.4	25×10^{15}

Loadings in Pounds per Day (4)

Tributary To:	BOD	Total Solids	Susp. Total Solids	Total N	Kjeldahl N	Total PO ₄	Soluble PO ₄
Bellport Bay	2,920	18,670	11,670	700	930	1,170	580
Moriches Bay	10,990	70,370	43,980	2,640	3,520	4,390	2,200
Study Area	13,910	89,040	55,650	3,340	4,450	5,560	2,780

(1) Assuming 9 month (39 weeks) season and duck life of 7 weeks.

Average Duck Population = $7/39 \times$ yearly production.

(2) At 60 gal/day/duck.

(3) Assuming waste MPN coliform density of $20 \times 10^6/100$ ml.

(4) Based on following waste characteristics in pounds per
1000 ducks per day:

BOD	25	Kjeldahl Nitrogen	8
Total Solids	160	Total Phosphate	10
Total Nitrogen	6	Soluble Phosphate	5
Suspended Solids	100		

facilities were reported to be only partially effective in removing settleable solids, and are not effective in removing biochemical oxygen demand, nitrogen, phosphates and micro-organisms. In addition, there were times when some farms bypassed their treatment facilities.^{2,12}

Industrial Wastes

Industrial waste discharges in the area emanate from a poultry processing plant and a fabric finishing mill.

A study¹⁷ of duck-processing wastes was made in 1964 at two plants on Long Island, one of which was reported to discharge its waste through ponds to an area of Moriches Bay. The results of the 1964 study at this plant are presented in Table IV.

Table IV

CHARACTERISTICS OF RAW DUCK PROCESSING WASTES

Waste Flow, gallons per duck	24.3
BOD, lb. per 1000 ducks	43.2
Susp. solids, lb. per 1000 ducks	31.0
Coliform, No. per 100 ml	56,800

During the four days of the study, the plant processed an average of 13,675 ducks per day. Table V

presents the estimated raw waste loads from this plant, using this production figure and the data presented in Table IV.

Table V

ESTIMATED LOADINGS - RAW DUCK PROCESSING WASTES

<u>Flow</u> <u>gal/day</u>	<u>BOD</u> <u>lbs/day</u>	<u>Susp. Solids</u> <u>lbs/day</u>	<u>Total Coliform</u> <u>per day</u>
332,000	590	420	2.5×10^{14}

In 1964, the raw waste from this operation was discharged to a settling pond prior to discharge to Moriches Bay. No data are available on the efficiency of treatment obtained by this settling, or on the quality of final effluent discharged to the bay. However, visual observation of the settling pond and final effluent indicate an unsatisfactory removal of waste materials.

No data are available on the wastes from the fabric finishing plant in Patchogue, the Patchogue-Plymouth Mill. During the early 1950's this firm discharged fabric finishes and dyes to Patchogue Creek. In 1954, the New York State Department of Health initiated abatement action against this firm. By January, 1963 abatement had been achieved according to Health Department records.

Municipal Wastes

The only municipal waste source discharging to the study area waters is that of the Village of Patchogue, which has sanitary sewers and a primary treatment plant operated by the Patchogue Sewer District. In 1951, this plant was reported¹⁸ to provide inadequate treatment for 3,400 persons. By 1954, alterations and improvements were underway and the State of New York indicated the plant would provide adequate treatment on completion of the work.¹⁹ The available data on this plant as of 1966 are presented in Table VI.

Table VI

DATA ON PATCHOGUE SEWER DISTRICT TREATMENT PLANT²⁰

<u>Type of System</u>	<u>Population Served</u>	<u>Design Flow-MGD</u>	<u>Treatment</u>	<u>Receiving Water</u>
Separate-Sanitary	5,000	0.5	Screens, grit removal, settling, post-chlorination	Patchogue Creek

Assuming a BOD of raw municipal sewage equal to 0.17 lbs. per capita per day and 30% removal by primary treatment, the discharge from this plant represents a total load of 600 lbs. per day of BOD which is five percent of that attributed to the duck farms.

Cesspools and Septic Tanks

The majority of the residents in the drainage areas of the study waters dispose of domestic sanitary sewage by individual cesspools or septic tanks. In areas of porous soils having a high ground water level, the wastes from such systems tend to contaminate and become a part of the ground water flow. This contamination of the ground water has been demonstrated by pollution of many wells in the area. In 1963, for example, the Suffolk County Department of Health estimated that 35 percent of the individual wells in Center Moriches were polluted. In areas of non-porous soils, cesspool and septic tank systems frequently overflow and the waste becomes a part of the surface runoff.

The rapid increase in population for the study area and for all of Suffolk County has been described earlier in this report. Table VII presents the 1960 population data for those communities lying within the drainage area under consideration and south of Sunrise Highway. These communities, with the exception of a portion of Patchogue, rely on individual sub-surface disposal means to handle sanitary wastes.

Table VII

MAJOR COMMUNITIES IN DRAINAGE AREA

South of Sunrise Highway

<u>Name</u>	<u>1960 Population</u> ¹	<u>Means of Waste Disposal</u>
Bellport Village	2,461	Individual Sub-surface
Center Moriches	2,521	Individual Sub-surface
East Moriches	1,210	Individual Sub-surface
Mastic Beach	3,035	Individual Sub-surface
Mastic-Shirley	3,397	Individual Sub-surface
Patchogue Village	8,838	(3,838 Ind. Sub-surface (5,000 Patchogue Sewer (District
Total 1960 Population	21,462	

Hence, of the 21,000 people in the immediate area, more than 16,000 attempt to discharge their wastes into the ground. Previous studies of ground water flow in the area of Brookhaven, Suffolk County, have shown a general southwesterly movement of ground water at a rate of approximately 0.3 feet per day.²² Although the movement of sub-surface water through soil does reduce bacterial contamination and suspended solids, dissolved materials such as nitrogen and phosphate can be transported with no decrease in concentration. Hence, the use of septic tanks and cesspools by the large rural type population provides a mechanism for injection of pollutants into the ground water and subsequent transport via the sub-surface aquifers into the adjoining surface waters. The transport of nutrients such as nitrogen and

phosphate in this manner presents a significant source of pollution to the waters of the study area.

Recreational Boating

While no information is available as to the magnitude of problems associated with the use of these particular waters for recreational boating, studies elsewhere have shown that recreational boating can represent a significant source of pollution. In areas of high boat density, such as marinas, the discharge of human waste with inadequate or no treatment results in pollution by bacteria and solids.

Other Sources of Pollution

In addition to the sources of pollution described above, water quality may be adversely affected by a variety of other land and water based activities. As part of the intense agricultural activity associated with truck farms found throughout Suffolk County, large quantities of agricultural chemicals are spread over the surface of the land. As a result of rainfall, excess chemicals are washed into the surface waters or percolate into the ground water

aquifers. Hence there is a transport of material, including nutrient fertilizers and toxic herbicides and pesticides, across and through the land into adjacent bodies of water. This source should be recognized as a possible contributing factor to the problems in the waters of the study area.

Additional degradation of water quality can occur as a result of extensive dredging activities. The disturbance of the bottom by dredges can result in a re-suspension of accumulated organic sludges and silt. In addition, uncontrolled dredging can result in the formation of significant potholes in the bottom of the bays. Such potholes can markedly increase detention time and reduce circulation, thereby preventing adequate mixing of pollutants with the receiving water, and subsequent flushing of the system.

V. EFFECTS OF WASTES ON WATER QUALITY AND USES

There have been many water quality studies in Moriches Bay and the eastern portion of Great South Bay. Most of these studies were conducted for relatively limited purposes and hence did not include consideration of all parameters of water quality and all adverse effects of degradation in quality on the various water uses. Hence, it

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is necessary to draw on a number of reports for an overall evaluation of the extent of pollution and its effects.

The President's Science Advisory Committee has summarized the pollution problem in Great South Bay and Moriches Bay as follows:

"1. Great South Bay and Moriches Bay, Long Island, N. Y.: Agricultural and domestic sewage pollution.--A serious pollution problem which caused the failure of a once prosperous shellfish industry and lessened the recreational use and esthetic value of Great South, Moriches, and Shinnecock Bays prompted the towns of Islip and Brookhaven (Suffolk Co., N. Y.) to commission Woods Hole Oceanographic Institution (W.H.O.I.) to conduct an analytical survey toward finding the causative agents and their necessary remedial measures. W.H.O.I. has conducted this survey since 1950.

"Using phosphorous concentration as an index of pollution, W.H.O.I. investigators traced the source of pollution to duck farms in Great South and Moriches Bay. Studies of the bay's hydrography showed that the low flushing rates of the bays were responsible for holding the pollutants long enough

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"to permit massive proliferations of minute algae which were deleterious to oysters. Dredging Moriches Inlet open served to increase the flushing rate and consequently pollution was substantially reduced. It did not recur until the inlet silted in sufficiently to lower the flushing rate. Conclusions from this study were that low salinity and low flushing rates augment ill effects of these pollutants (in this case the organic nitrogen compounds from duck-farm waste) and that remedial measures are any that will raise salinity and flush out nitrogenous wastes. These generalizations appear to have held true during the period of the investigation.

"Biologists studying this problem conclude that until such a time as the pollution is stopped at its source or the inlets to Moriches and Great South Bay are appreciably widened and stabilized, the shellfish industry and the recreational interests in the area will be at the mercy of unpredictable and uncontrollable meteorological conditions.

"In 1964 residents of Brookhaven and adjacent towns complained again of foul smells emanating from Great South Bay. In spite of a decline in the duck farming industry, pollution was great enough to hamper

"recreational use of parts of the Bay, and bubbles of hydrogen sulfide and methane belching from bottom potholes discolored paint of houses near the water. It was then found that dredged areas along the shore served as traps for large multicellular algae which underwent anaerobic degradation, producing the unpleasant gases. Much of the rotting material came from abnormally expanding *Zostera* beds in shallow areas of the Bay. It appears now that pollution from the duck farm wastes is now being augmented by an increasing human population along the bay shore and that septic tank wastes may have become the major source of algal nutrient. No study of these new developments is in progress as of this date.*****"23

Many of the specific conditions described below have been observed in the streams that receive duck farm wastes in the area under consideration, and have led to numerous complaints. The discharge of wastes to these waters has caused economic injury to the shellfish industry, decreased esthetic enjoyment, produced offensive odors, decreased productivity of fish and other aquatic life, and interfered with recreational uses of the waters. On the beaches adjacent to the mouths of some of the streams strips of black, odorous sludge have accumulated on the sand at the water's edge, or

may be uncovered by digging into the shallow layers of sand that have been washed over them by wave action.

Bacteria

Bacteria from duck and human feces constitute a major pollution problem in the waters of the area. The major source of bacteria is the duck raising industry, although some bacteria survive the sewage treatment processes of the Village of Patchogue, or may reach the bay waters from inadequate private sewage disposal systems of individual homes along the waterfront. Other bacteria are discharged from recreational boats using these waters.

Bacterial pollution has caused the closure of valuable shellfish water in both Moriches Bay and Bellport Bay, as well as in other areas of Great South Bay. Those areas closed to shellfishing are shown in Figure 1. Copies of the closure orders are included in the Appendix of the report. According to the Shellfisheries Management Unit of the State of New York Conservation Department, harvesting of clams is prohibited in 4,540 of the 10,775 acres of Moriches Bay and 1,600 of the 3,840 acres of Bellport Bay. The combined closed acreage, representing 42% of the total water area, is estimated to be capable of producing more than 300,000 bushels of clams

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annually, with a dockside value in excess of \$2,500,000. This unharvestable crop represents a major economic loss to both the shellfish industry and the area as a whole. Most of the bacterial pollution that necessitates closing of these shellfish waters appears to originate on the many duck farms clustered along the streams of the area from Speonk River on the east to Carmans River on the west, as shown on the map.

An additional 400 acres of shellfish beds in Patchogue Bay are closed to harvesting because of bacterial pollution from the Village of Patchogue sewage treatment plant. Summer homes that may contribute to the bacterial pollution of adjacent waters are located principally along Narrow Bay which connects Moriches and Bellport Bays.

The economic loss in shellfish production is not the only damage caused by bacteria. The streams on which duck farms are situated, including their tidal sections and adjacent waters, are subjected to bacterial pollution that in some areas is a definite hazard to the health of those coming in contact with these waters. In other areas, the bacterial contamination makes the use of the waters for such recreational activities as swimming, boating, and fishing questionable. The detection of particular species of Salmonella bacteria known to cause human gastrointestinal

diseases, in the wastes of several duck farms and the receiving waters, emphasizes the existence of this hazard to human health.

Nutrients

Human and animal feces contain phosphorus and nitrogen that serve as nutrients, or fertilizers, for both land and water plant life. Although other elements are necessary as nutrients for plant growth, deficiencies in phosphorus and nitrogen are believed to be the most common limits on aquatic plant growth. Current technology permits the design of treatment plants capable of removing these elements from sewage and industrial waste, although conventional treatment plants provide only slight reduction of these materials.

Both Moriches and Bellport Bays, as well as the entire Great South Bay, are rich in phosphorus and contain adequate nitrogen to support prolific growths of both suspended and attached algae. Whereas open coastal waters commonly contain 0.02 to 0.05 milligrams per liter (mg/l) of phosphorus (as P), the enclosed Moriches and Bellport Bays have been found to contain from 0.02 to as much as 1.0 mg/l of phosphorus. While the limiting concentration of phosphorus

for excessive algae growth in sea water has not been established, the commonly accepted limiting concentration in fresh water is 0.01 to 0.015 mg/l.

The limiting value of nitrogen for aquatic plant growths in fresh water is generally accepted to be 0.3 mg/l (as N). The waters of the two bays have been found to contain from 0.2 to 0.9 mg/l of total nitrogen. Sources of this phosphorus and nitrogen are the wastes from duck farms, the direct discharge of domestic and municipal sewage, and percolation from private home sewage disposal systems.

With the adequate supply of nitrogen and the abundance of phosphorus, the waters of the bays support luxurious growths of suspended algae, attached filamentous algae and rooted aquatic plants. The suspended algae have caused both economic and esthetic damage. In 1955 especially, and to a lesser degree in other years, a particular form (Nannochloris atomius) of very minute suspended algae clogged the gills of clams and markedly reduced their quality and production in Moriches Bay, resulting in economic losses. The suspended algae generally reduce esthetic enjoyment of the bay waters by reducing their clarity, sometimes to the extent that objects in more than two feet of water are not visible from the surface.

These algae forms also pose a threat to the

dissolved oxygen content of these bay waters. Dissolved oxygen is necessary to support aquatic life, including fish. With unfavorable changes in environmental conditions, the sudden death and subsequent decomposition of the dense algal population can deplete the dissolved oxygen of areas of the bays to the extent that fish and other aquatic life are not able to survive.

The attached filamentous algae and rooted aquatic plants cause another and very obvious type of esthetic damage. They become detached from their moorings, especially during periods of turbulent water, accumulate as slimy masses in the surf and wash up on the shore. It is not uncommon to see masses of these detached plants covering long reaches of the shore several inches deep and many feet from the water's edge. They not only present a most unsightly appearance but also decay and produce extremely offensive odors. With shoreline conditions such as these, the waters have an extremely limited recreational value.

Suspended Solids

Wastes from duck farms contain variable concentrations of suspended solids. In some cases, the concentration of suspended solids may be as much as one-half of

that found in untreated domestic sewage. These suspended solids include large proportions of decomposable organic solids.

Upon discharge to the receiving waters, the suspended solids immediately impart a disagreeable grey turbidity to the waters and diminish their esthetic appeal. The heavier solids settle to the stream bottom in the vicinity of the points of discharge and form objectionable and harmful sludge deposits. These sludge blankets cover and destroy the bottom aquatic animals that serve as food for fish. The organic material in the sludge undergoes a decomposition process which lowers the dissolved oxygen level in the overlying waters, at times to below that needed for fish and other aquatic life to survive. When complete depletion of oxygen occurs, the further decomposition of organic matter produces obnoxious hydrogen sulfide gas which appears as bubbles on the surface. This gas breaks loose masses of the deposited sludge and lifts them to the surface where they appear as unsightly grey to black odorous clumps and rafts.

The lighter suspended solids are carried downstream by the velocity of the flowing water to settle and form similar sludge banks in eddy areas distant from the points of discharge. In coastal streams, the salt content of the sea water precipitates the fine colloidal portions

of the suspended solids to form additional sludge deposits where fresh and salt waters meet.

Thus, these suspended solids may produce harmful effects throughout the entire lengths of the receiving streams from the points of discharge to their mouths.

VI. POLLUTION ABATEMENT PROGRAMS

The State of New York, originally through its Water Pollution Control Board and more recently through the New York State Water Resources Commission, conducts a program of classification of State waters. Such a program delineates the best usage for the waters and establishes applicable water quality standards which are to be met so as to make possible such water usage.

In 1951, the State classified the waters of Moriches Bay and its tributary streams. This was followed in 1954 by the adoption of classifications for the waters of Patchogue and Bellport Bays, the adjoining southerly portion of Great South Bay, and the tributaries to these waters. In general, the classifications adopted require water quality suitable for shellfish propagation in the open bays and bathing on the shoreline, with lower classifications for the various tributary streams so as to permit reasonable use for waste disposal.

Following classification, the State issues comprehensive plans for the abatement of pollution and upgrading of the waters to meet the adopted standards of water quality. In February of 1952, a comprehensive plan was issued for the abatement of pollution from the waters of the Moriches Bay drainage basin. This plan included orders for the abatement of pollution resulting from the operation of duck farms and set a timetable requiring completion by April, 1954, but was noted as being flexible and took recognition of the lack of satisfactory methods for the treatment of duck farm wastes.

In January 1954, a comprehensive plan was issued for the abatement of pollution from the waters of the Great South Bay - Easterly Section Drainage Basin, which includes Patchogue and Bellport Bays and their tributaries. This plan established a requirement for the removal of all ducks from open natural waters and the installation and operation of devices for the effective removal of settleable solids. No date for the meeting of such requirements was established by this order.

Based on available information, the requirements of the abatement orders issued in 1952 and in 1954 have yet to be met by the various duck farms.

In early 1966 the New York State Department of

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Health was considering an order of modification establishing a timetable for the abatement of pollution by duck farm wastes. Under the terms of this order, a copy of which is included in the Appendix to this report, submission of preliminary plans for biological treatment would be required on or before January 1, 1967. Such treatment would be required to provide at least 85% removal of suspended solids and BOD, removal of a substantial portion of the phosphorus, and effective disinfection of the effluent. The order also stipulates that final construction plans for such facilities must be submitted on or before August 1, 1967 and construction must be undertaken on or before November 1, 1967 so as to be complete on or before April 30, 1968. The order would further require maintenance and operation of these treatment facilities so that they shall, at all times, meet the performance criteria described above.

The Suffolk County Department of Health conducts an annual inspection program of duck farm waste treatment facilities. The Department's Annual Report for 1963 described the poor compliance record obtained through that date. By 1965, however, inspection showed that all of the active duck farms had in operation settling lagoons.

A number of studies have been made to determine feasible means of treatment of the duck farm wastes. In 1957,

a Special Waste Disposal District was established in the Town of Southampton to construct a treatment plant to abate pollution from several duck farms. The project was determined to be eligible for financial assistance under the Construction Grants Program of the Federal Water Pollution Control Act and construction of a primary treatment plant was started in June of 1958. In January of 1959, the Public Health Service made a partial payment of \$5,000 towards the cost of the plant. The plant was reportedly completed in July of 1961 at a total cost of \$29,400 and a request was made for a final payment of \$2,350 by the Federal Government. However, an inspection by the Public Health Service immediately after the completion of construction indicated a structural failure in the tank. After correcting this failure, the operating agency still failed to complete connections to the plant and to operate the plant in a satisfactory manner. The Federal Government has not yet made its final payment toward the cost of this plant due to the continuing lack of adequate operation and maintenance, and a field visit in August 1966 indicated the plant was not in use.

The interest in the abatement of pollution from duck farm wastes is demonstrated by the emphasis placed upon this problem by the New York State Joint Legislative Committee on Natural Resources. The 1959 Report of this committee

noted "Each year for the past seven years the Committee has convened a year-end inventory conference on the Long Island duck wastes pollution problem." The Committee has reviewed this problem and made specific recommendations over a number of years.

In September of 1965 the Suffolk County Department of Health received an interim report on a comprehensive sewerage study for the five westerly towns of Suffolk County. This report suggested the creation of two sewage districts to collect, treat, and dispose of water-borne waste. The preliminary design encompasses a series of interceptor sewers, a treatment plant providing 90% or better removal of all objectionable constituents, outfalls to conduct plant effluent to the Atlantic Ocean, and facilities for the recharge of the groundwater by treated effluent.

Also in September 1965 the Suffolk County Board of Supervisors authorized the formation of a Suffolk County Sewer Agency charged with carrying out studies leading to the preparation of plans and ultimate construction of sewerage facilities for Suffolk County.

CONCLUSIONS AND RECOMMENDATIONS

1. The navigable waters of Moriches Bay and the

easterly end of Great South Bay receive the discharge of wastes from extensive duck farms, municipal and domestic sewerage systems, industrial operations, recreational boats, and land drainage. As a result, these waters are polluted by bacteria, suspended solids, and nutrients.

2. As a result of the bacterial contamination of the overlying waters, substantial areas in Moriches and Great South Bays have been closed by State authorities to the harvesting of shellfish. These closures have resulted in substantial economic injury with the loss of a shellfish crop with a value in excess of \$2,500,000 annually.

3. Accordingly, the pollution of these navigable waters is subject to enforcement measures under the provisions of Section 10 of the Federal Water Pollution Control Act, as amended.

4. In addition to constituting a health hazard via shellfish, the bacterial contamination of these waters constitutes a potential hazard to the health and welfare of persons utilizing these waters for recreation. The pollution of these waters by suspended solids and nutrients has resulted in an unsightly appearance, the production of objectionable odors, and excessive growths of algae and other aquatic plants. These conditions limit the use of these waters for recreational bathing, boating, and esthetic enjoyment.

5. The major sources of bacteria, solids and nutrients to these waters are the extensive duck growing farms lining the shores of a number of tributary streams. Although these farms do provide settling ponds, the existing treatment facilities do not provide effective removal or control for BOD, nutrients and bacteria and are only partially effective in removing settleable solids. Other known sources of pollution in the area include the discharge of primary treated municipal wastes from one sewage treatment plant, industrial waste discharges, the transport of nutrients and bacteria from individual domestic sewage treatment facilities, and the discharge of bacteria and solids from recreational boats using these waters. Surface and groundwater runoff of agricultural chemicals also serve as additional contributing factors in the pollution of these waters.

6. The pollution of these waters is complicated further by the natural hydrographic conditions. The Bays have extremely limited circulation patterns so that flushing times are extreme. The siltation of Moriches and Fire Island Inlets has been shown to be an important factor in the control of water quality problems in the study area.

7. The waters under consideration have been classified and water quality standards have been adopted by the New York State Department of Health, the agency having legal

jurisdiction over water pollution control in the study area. This classification has been conducted through the New York State Water Resources Commission, the State agency charged with such classification.

8. To date abatement orders issued by the State of New York have failed to abate effectively pollution of these waters. Modification of these orders to incorporate new abatement requirements and time schedules is currently under way.

9. In order to achieve satisfactory water quality it will be necessary for all waste discharges to be abated at the source.

10. Adequate treatment facilities should be constructed to handle the effluent from all duck farms discharging into the study area. Such facilities should meet, as a minimum, the requirements called for in the New York State proposed order of modification, which requires that the facility be capable of providing at least 85% removal of suspended solids and BOD, a substantial removal of phosphates, and effective disinfection to the extent that the final effluent shall at all times contain a chlorine residual of not less than one-half part per million after not less than 15 minutes contact time, and an MPN of coliform organisms not greater than 100 per 100 ml in at least 90% of the samples in a series thereof,

Paul DeFalco

provided that at no time may the MPN of such organisms in the final effluent exceed 10,000 per 100 ml. Design and construction of facilities to accomplish the above treatment should be in accordance with the following time schedule included in the New York State Order of Modification:

- a. Preliminary plans for treatment to be submitted on or before January 1, 1967;
- b. Final construction plans to be submitted on or before August 1, 1967;
- c. Construction to be initiated on or before November 1, 1967 and to be completed on or before April 30, 1968;
- d. After construction, such facilities shall be maintained and operated in such a condition that they shall meet the requirements listed above.

In addition to the requirements of the Order of Modification, substantial removal of other nutrient materials, particularly the nitrogen group, should also be required.

11. The treatment requirements and time table listed above should also be adopted for all other sources of wastes discharging to these waters with the exception of individual cesspools and septic tanks handling domestic sewage. Current plans for the formation of sewer districts to collect and

provide adequate treatment of the wastes now being handled by these individual systems should be implemented as soon as possible, with facilities in operation no later than January 1, 1970.

12. Recent legislation requiring all recreational boats in the area having toilets to provide either adequate treatment facilities or holding tanks capable of storing waste material for subsequent discharge to on-shore treatment facilities should be implemented as soon as possible.

That concludes the report.

Paul DeFalco

MR. STEIN: I assume that you want the entire report, including the charts, in the record as well?

MR. DeFALCO: Yes, I would appreciate it.

MR. STEIN: Without objection, that will be done.

(The Appendix to the Report is as follows:

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* * *

C O P Y

TOWN OF SOUTHAMPTON

NEW YORK STATE CONSERVATION DEPARTMENT
SHELLFISH SANITATION AND ENGINEERING SERVICES
OAKDALE, LONG ISLAND, NEW YORK 11769

TOWN OF SOUTHAMPTON

NOTICE TO ALL SHELLFISH HARVESTERS

The following is a Statement of the Sanitary Condition of the shellfish lands including a listing of those areas which are closed to the taking of shellfish of all kinds for the town in which you claim residency. THE STATE LAW PROHIBITS YOU FROM WORKING IN ANY AREAS THAT ARE CLOSED TO THE TAKING OF SHELLFISH. You may not work in any of these closed areas without first obtaining proper permits from this Department. The Conservation Department holds you responsible for being acquainted with the sanitary condition of any and all areas from which you harvest shellfish.

If you intend to harvest shellfish in waters of any town other than that in which you claim residency, it is mandatory that you contact either the Town Clerk of the town in which you intend to work, or the Shellfish Sanitation and Engineering Services Office of the New York State Conservation Department and obtain a listing of any areas that may be closed to shellfishing in that town.

NOTICE OF CONDITION OF ALL SHELLFISH GROUNDS
LOCATED WITHIN OR ADJACENT TO THE TOWN OF
SOUTHAMPTON, SUFFOLK COUNTY, NEW YORK.

TOWN OF SOUTHAMPTON

The shellfish lands within the County of Suffolk, Town of Southampton, except those listed hereafter, are in such sanitary condition that shellfish thereon may be taken for use as food, and such lands are designated (open) areas.

The following shellfish lands within the County of Suffolk, Town of Southampton, are in such sanitary condition that shellfish thereon shall not be taken for use as food, and such lands are designated uncertified (closed) areas.

Town of SouthamptonMoriches Bay

1. All of Seatuck Cove and its tributaries north of a line extending easterly from the southernmost tip of Havens Point to the mouth of the canal known locally as Wetzel's Creek.
2. All rivers, creeks and canals of the mainland shore between Havens Point and the highway bridge at Potunk Point, including all those at Westhampton Beach, except Quantuck Canal.
3. That area of Speonk Cove north and west of a line extending northeasterly from the southernmost tip

Paul DeFalco

TOWN OF SOUTHAMPTON

of Speonk Point to the summer cottage near shore on the property of the Cedar Beach Hotel at the foot of Jagger Lane at Tanner Neck (local landmark).

4. Also that area lying north and east of a line extending northeasterly from the southeasternmost tip of Forge Point to Buoy F1 R"27" in the main channel and thence easterly along the buoyed channel through the bay to the highway bridge at Potunk Point including all of the buoyed channel, from May 1 to October 31, both inclusive.

Quantuck Bay

1. All mainland creeks and canals at Quogue except Quogue Canal.
2. Quantuck Creek north of the Montauk Highway.

Shinnecock Bay

1. All creeks and canals at East Quogue including that area of Weesuck Creek north and east of a line extending due east from the southeasternmost utility pole on Weesuck Avenue to the opposite shore.
2. All of the Shinnecock Canal.

Note: All reference points in the above areas in the

TOWN OF SOUTHAMPTON

Town of Southampton taken from U.S.C. & G.S. Nautical Chart 120-SC edition of 1964, except as indicated as "local landmark."

Mecox Bay

1. Hay Ground Cove north of a line extending due west from the northern shore of Calf Creek at its mouth (local names).
2. Also Hay Ground Cove, Calf Creek and the area within a one-quarter-mile radius of the mouth of Hay Ground Cove, from May 1 to October 31, both inclusive.

Note: All reference points in Mecox Bay in the Town of Southampton taken from U.S.C. & G.S. Chart #1212 dated May 25, 1963, except as indicated as "local names."

Sag Harbor

1. That area of Sag Harbor and its tributaries lying within or west of the breakwater and south and west of a line extending northwesterly from the northern end of the breakwater to the southeastern corner of the 1 last white house at the southern end of East Harbor Drive at North Haven (owned in January 1965 by J. B. Carr) and east of the highway bridge known

TOWN OF SOUTHAMPTON

as the Sag Harbor-North Haven Bridge (local landmarks).

2. That area of Sag Harbor Cove and Upper Sag Harbor Cove lying west of the highway bridge known as the Sag Harbor-North Haven Bridge (local landmark).

Note: All reference points in Sag Harbor in the Town of Southampton taken from U.S.C. & G.S. Chart #363 dated August 31, 1964, except as indicated as "local landmark."

Peconic River

1. All tidal waters of the Peconic River and its tributaries within the Town of Southampton.

Flanders Bay and Reeves Bay

1. That area of Flanders Bay and Reeves Bay lying south and west of a line extending northwesterly from Red Cedar Point to Channel Buoy F1 R"6" and thence northerly to Sims Point at Fanning Beach (local landmarks).
2. All rivers, creeks and canals tributary to Flanders Bay and Reeves Bay.

Note: All reference points in Peconic River, Flanders Bay and Reeves Bay in the Town of Southampton taken from U.S.C. & G.S. Chart

TOWN OF SOUTHAMPTON

#363, dated August 31, 1964, except as indicated as "local landmark."

Atlantic Ocean

1. All areas of the Atlantic Ocean in the Town of Southampton are certified (open) for the taking of surf clams only.

R. Stewart Kilborne

Conservation Commissioner

By:

Dated:

Quentin R. Bennett

Albany, N. Y.

Marine Fisheries Sanitarian

March 20, 1965

As amended through

March 15, 1966

* * *

C O P Y

TOWN OF BROOKHAVEN

NEW YORK STATE CONSERVATION DEPARTMENT
SHELLFISH SANITATION AND ENGINEERING SERVICES
OAKDALE, LONG ISLAND, NEW YORK 11769

Paul DeFalco

TOWN OF BROOKHAVEN

NOTICE TO ALL SHELLFISH HARVESTERS

The following is a Statement of the Sanitary Condition of the shellfish lands including a listing of those areas which are closed to the taking of shellfish of all kinds for the town in which you claim residency. THE STATE LAW PROHIBITS YOU FROM WORKING IN ANY AREAS THAT ARE CLOSED TO THE TAKING OF SHELLFISH. You may not work in any of these closed areas without first obtaining proper permits from this Department. The Conservation Department holds you responsible for being acquainted with the sanitary condition of any and all areas from which you harvest shellfish.

If you intend to harvest shellfish in waters of any town other than that in which you claim residency, it is mandatory that you contact either the Town Clerk of the town in which you intend to work, or the Shellfish Sanitation and Engineering Services Office of the New York State Conservation Department and obtain a listing of any areas that may be closed to shellfishing in that town.

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TOWN OF BROOKHAVEN

NOTICE OF CONDITION OF ALL SHELLFISH GROUNDS LOCATED
WITHIN OR ADJACENT TO THE TOWN OF BROOKHAVEN, SUFFOLK
COUNTY, NEW YORK.

The shellfish lands within the County of Suffolk,
Town of Brookhaven, except those listed hereafter, are in
such sanitary condition that shellfish thereon may be taken
for use as food, and such lands are designated certified
(open) areas.

The following shellfish lands within the County of
Suffolk, Town of Brookhaven, are in such sanitary condition
that shellfish thereon shall not be taken for use as food,
and such lands are designated uncertified (closed) areas.

Town of Brookhaven (South, Shore)

Great South Bay

1. All of Patchogue Creek, Swan Creek, Mud Creek,
Hedges Creek, Howell Creek, and all other creeks
and canals between Blue Point and Howell Point.
2. That area of Patchogue Bay, and all adjacent
creeks and canals, lying north and west of a line

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TOWN OF BROOKHAVEN

extending southeasterly from a privately maintained light (F1 G"B") at the end of the bulkhead forming the entrance to the canal and boat basin at the Blue Point (Corey Creek) to Buoy N"4" in the channel leading to Patchogue Creek, and continuing northeasterly to a privately maintained light (F-R) at the southeastern tip of the bulkhead forming the Village Dock at the foot of Ocean Avenue in Patchogue, and thence easterly to the southern tip of two sunken wooden barges (local landmark) near the entrance to the first canal and boat basin east of Mud Creek. (When the above lights are not operating the bulkhead extremities on or near which the lights are located will serve as markers for the lines of closure.)

Bellport Bay

1. That area north and east of a line extending easterly from the flagstaff at the Bellport Yacht Club at the dock at the foot of Bellport Lane in Bellport to Black Buoy F1 G"5" in the main channel, and continuing southeasterly along the main channel to Red Buoy F1 R"12" near Smith Point, and thence

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TOWN OF BROOKHAVEN

northeasterly to the tip of Smith Point.

Narrow Bay

1. All that area, including Johns Neck Creek and all creeks and canals of the mainland shore, between a line extending southerly from Smith Point to the flag tower on Great South Beach and a line from shore to shore passing due north and south through Buoy F1 G"17" located in the main channel near Pattersquash Island.
2. All of Pattersquash Creek and the area of the mouth of Pattersquash Creek.
3. The canal known locally as Mastic Beach Lagoon and the area of the mouth of said canal.

Moriches Bay

1. That area north and west of a line extending northeasterly from the mouth of Home Creek (local landmark) to Masury Point, including all of Home Creek, the Forge River and its tributaries, and all other creeks and canals of the mainland shore between Forge Point and Masury Point.
2. That area north and west of a line extending

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TOWN OF BROOKHAVEN

northeasterly from Masury Point to the privately maintained light (F1 G) at the mouth of Orchard Neck Creek, including all of Senix Creek, Orchard Neck Creek and all other creeks and canals of the mainland shore between Masury Point and Orchard Neck Creek.

3. That area including the Terrell River lying north and east of a line extending southeasterly from the privately maintained light (F-G) at the mouth of Orchard Neck Creek to Buoy F1 G"31" in the main channel and thence northeasterly to the southernmost tip of Tuthill Point.
4. All of Tuthill Cove north and west of a line extending northeasterly from the southernmost tip of Tuthill Point through Channel Buoy N"4" to the shore at the Moriches Coast Guard Station (Moriches CG No. 76).
5. All of Hart Cove and its tributaries north and west of a line extending northeasterly from shore at the foot of Evergreen Avenue (local landmarks).
6. All of Seatuck Cove and its tributaries north of a line extending easterly from the southernmost tip of Havens Point to the mouth of the canal known locally as Wetzels Creek, including all of Wetzels

TOWN OF BROOKHAVEN

Creek.

7. Also that area lying north and east of a line extending northeasterly from the southeasternmost tip of Forge Point to Buoy F1 R"27" in the main channel and thence easterly along the buoyed channel through the bay to the highway bridge at Potunk Point including all of the buoyed channel, from May 1 to October 31, both inclusive.

Note: All reference points in the Town of Brookhaven (South Shore) taken from U.S.C. & G.S. Nautical Chart 120-SC edition of 1964, except as indicated as "local landmark."

Town of Brookhaven (North Shore)

Port Jefferson Harbor

1. All that area of Port Jefferson Harbor south and east of a line extending southwesterly from the flashing light and bell on the jetty at the eastern side of the entrance to Port Jefferson Harbor to the flashing red light on the jetty at the western side of the harbor entrance and then continuing southerly to a stone jetty at the shore near Buoy C"3" at the entrance to Setauket Harbor.

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TOWN OF BROOKHAVEN

Note: All reference points in the Town of Brookhaven
(North Shore) taken from U.S.C. & G.S. Chart #361 dated
July 6, 1963.

R. Stewart Kilborne

Conservation Commissioner

Dated:

By:

Albany, N.Y.

Quentin R. Bennett

March 20, 1965

Marine Fisheries Sanitarian

As Amended through

March 15, 1966

* * *

C O P YORDER OF MODIFICATION

A Notice of a consolidated public hearing and a
Complaint in the above entitled proceedings having been
duly served and the Respondent, by GREENWALD, KOVNER and
GOLDSMITH, his Attorneys, pursuant to Part 76.4 of Chapter
II of Title 10 of the Official Compilation of the Codes,
Rules and Regulations of the State of New York, having

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waived such hearing and having stipulated with the Counsel of the New York State Department of Health that all of the allegations of the Complaint contained in paragraphs are true and that facts exist upon which this Order may be predicated and that the same might be made, filed and served.

NOW on reading and filing said Notice of Hearing and Complaint and proof of service thereof and stipulation, and due deliberation having been had, it is

ORDERED:

1. That said stipulation aforesaid be and the same hereby is approved and the facts therein are found and the conclusions therein are arrived at.

2. THAT all Orders of the Water Pollution Control Board of the State of New York directed to or against the Respondent be and they hereby are modified to provide that the Respondent shall, and said Respondent is hereby ordered and directed to, on and after January 2, 1967, cease and abate, and thereafter keep abated all discharges of duck wastes and duck processing wastes by him or through or from lands or facilities owned by him or under his management or control into the waters of the State unless said Respondent shall:

(a) On or before January 1, 1967, submit to

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the New York State Department of Health, through the Suffolk County Health Department, preliminary plans showing facilities for biological treatment of all such wastes and/or effluents thereof to the extent that at least 85% of the suspended solids and at least 85% of the biochemical oxygen demand and a substantial portion of the phosphates thereof and therein shall be removed and facilities for disinfecting such wastes and/or waste effluents to the extent that the final effluent shall at all times contain a chlorine residual of not less than one half part per million after not less than 15 minutes contact time and a MPN of coliform organisms not greater than 100 per 100 ml. in at least 90% of the samples in a series thereof, provided that at no time may the MPN of such organisms in said final effluent exceed 10,000 per 100 ml.

(b) On or before August 1, 1967, submit final construction plans, in approvable form, prepared by or under the direction of a duly licensed professional engineer, for such facilities.

(c) On or before November 1, 1967, initiate construction of such facilities.

(d) On or before April 30, 1968, cause construction of such facilities to be completed.

(e) Thereafter maintain and operate said

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facilities in such manner that they shall at all times meet the performance criteria set forth in decretal provision 2(a) hereof and that the standards of no waters of the State shall be contravened by reason of the wastes aforesaid or their effluents.

3. THAT any and all permits for the discharge of wastes or waste effluents into the waters of the State issued to the Respondent or to his predecessors or assignors by or on behalf of the New York State Department of Health or the Commissioner of Health of the State of New York or the Water Pollution Control Board be and they hereby are modified, effective May 1, 1968, or upon default of performance of any of the alternative decretal provisions hereof prior thereto, to refer and relate to and permit only the discharge of waste effluents treated in the facilities construction of which is hereby alternatively ordered.

DATED: Albany, New York, 1966

HOLLIS S. INGRAHAM, M.D.

Commissioner of Health of the
State of New York

TO: WATER RESOURCES COMMISSION

GREENWALD, KOVNER & GOLDSMITH
(Attorneys for Respondent)

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* * *

MF. STEIN: Are there any comments or questions?

Mr. Metzler?

MR. METZLER: As you know, Paul, I am just getting acquainted with some of these waters here, so there are a few gaps in this report as far as my own knowledge is concerned that I would like to know a little more about.

First, you mentioned the effect which salinity has in the Bay. What is the level? What is the variation in the level of chlorides in Moriches Bay?

MR. DeFALCO: Well, you have from the upper headwaters as little as practically background to zero level of chlorides to as much as 30,000 parts near the inlet area, where you have almost fresh sea water. You have a complete variety of chloride levels progressing across the Bay.

MR. METZLER: How does this vary? Is it day-to-day, or seasonally? Are they seasonal?

MR. DeFALCO: There will be seasonal variations in terms of your surface water runoff. These will be more effectively felt in the upper headwater areas, where more fresh water essentially dilutes the chlorides coming in. As you get drought conditions, you have the reverse happening.

MR. METZLER: You made an estimate of two and a half million dollars damage to the shellfish industry. I am hopeful to hear some more testimony from the folks who

actually work in this area a little later, but can you tell me the basis for that?

MR. DeFALCO: This is based on the average production figures in the area, the average productivity of the given acreage, the amount of closed acreage, and the average price at the dock.

Now, this was, to say the least, a conservative estimate, because the impact on the economy is estimated at some ten times that in studies that were conducted down in Florida.

MR. METZLER: A question with respect to the conclusion No. 8 here.

That conclusion states that pollution has not been abated, and certainly it has not; but if all of the organic load on the Bay had been eliminated, would this have corrected this condition?

MR. DeFALCO: It would have corrected a substantial portion of the condition.

There is no question that the sludge deposits that are in the Bay are also a major contributing factor to the present condition, that the carry-over from the past, shall we say --

MR. METZLER: What happens to the nutrients there, whether they are effectively flushed out or whether the cycle of algae nutrients just keeps on going for an

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indefinite period. That is the reason for my question.

MR. DeFALCO: Well, the cycle will continue for some time, unless we increase the flushing capacity of the Bay, this possibly by enlargements of the inlets.

There are several solutions required, not just the treatment at the source. The treatment at the source would eliminate the problem as of now, but we have to carry over the problem from the past. We have to remove the past damage. This can possibly be accomplished by a dredging program.

Some of this is currently under way, I understand, in Moriches Bay, by the county.

It would also add to the situation if we could increase the flushing capacity of the area by increasing the size of the inlets.

It is indeed a complicated problem.

MR. METZLER: Well, right on this point, your Recommendation No. 6 is that the pollution is further complicated by the hydrographic problems and hydrographic conditions. I assume this refers to the lack of flushing that now occurs?

MR. DeFALCO: That is correct.

MR. METZLER: Do you make a specific recommendation for increasing this flushing action?

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MR. DeFALCO: Well, we think that there should be some studies along this line to see if this could be done. Yes. There would be value to this.

MR. METZLER: One final question: I am very much interested in some of the information that we have been reading in the public press lately about the removal of phosphates and this new breakthrough, so I am especially interested in the comment on Page 23 here that:

"Current technology permits the design of treatment plants capable of removing these elements..."

and there you have referred to both phosphorus and nitrogen from sewage and industrial wastes.

I wonder what kind of treatment processes you might have in mind.

MR. DeFALCO: Basically, what we are referring to is that we know we can remove phosphates by chemical treatment, by chemical coagulation.

There also has been some recent work done down in the Texas-Oklahoma area which indicates that modification of the operation of an activated sludge plant might also give increased removals of phosphates. This is additional work that is under way.

With reference to nitrogen, we were essentially

referring to the current carbon adsorption technique as one of the possibilities for removing nitrogen where it is necessary.

MR. METZLER: May I inquire a little further about the phosphorus, and then go on to nitrogen?

I hope the other conferees will forgive me, for any time I get an opportunity to learn about these things, I want to take that opportunity.

Do we know of any place except in that special condition which we may have down in San Antonio, as far as the quality of the municipal water supply is concerned, where we have been able to modify the activated sludge process so that we can, as a matter of fact, get reductions in phosphorus?

MR. DeFALCO: Well, not on that basis. This is the only work, as I pointed out, that has been done in this area.

MR. METZLER: But there are other investigators who have been working at this, and also trying to accomplish these same goals, and there are still some doubts about whether this will work any place other than San Antonio.

MR. DeFALCO: At the present moment this is what is being pursued.

There is rather extensive work under way to

Paul DeFalco

extend this to other areas of the country.

MR. STEIN: So that we keep this all in one place, I think it would be fair to say that the information from our investigators down in San Antonio -- and I have been keeping up with this too because we have this problem in various places -- is very encouraging, at least in their view. They think it can be done in other places.

However, we do find that even in Chicago, or Indiana, when you take two plants, we find that one plant will be getting, oh, a 30 or 40 percent removal of phosphates, and another will go up to 60.

What we are investigating is why these plants are different, and if we can modify the process in various parts of the country if they are different. Obviously, I don't think we have come up with a procedure on modifying the activated sludge operation that anyone can guarantee will work in any part of the country.

However, we do know that phosphates can be removed if you want to put a chemical precipitant in, and I think that would work. We had to do that at Hanford, where there were complaints about radioactive phosphorus. We did put alum in and we got the phosphorus out.

Do you recall the cost on that, Paul?

MR. DeFALCO: No, I don't recall.

MR. STEIN: It wasn't really high, but it is higher than we would like.

To summarize, I think the chemical precipitant can safely be said to work if you want to get phosphorus out most anywhere. The modification of the activated sludge, I think, is still in the demonstration stage.

Let me tell you what happened in San Antonio, though not in detail. They found one plant where the phosphate removal was rather high, and the other plant where it was not -- another plant in the same area, where it was not high.

They examined the mode of operation and the flow in both these plants, got the difference, modified the low removal to coincide as closely as possible with the plant with which was receiving high removal. Lo and behold, at least in San Antonio or in the Arkansas-Texas plant, they rather startlingly improved the removal of the phosphorus.

As Mr. Metzler points out, no one is sure at this stage whether this is going to work anywhere else, but I do think that if we put our minds to it, I am pretty sure we can get a phosphate removal process that is going to work in New York State and Long Island.

MR. METZLER: May I extend this question a bit further?

Paul DeFalco

What did you have in mind as far as nitrate removal is concerned, Paul?

MR. DeFALCO: Basically, carbon adsorption techniques.

MR. METZLER: Well, I think you would have to think about this in terms of the problem we have, and certainly carbon adsorption techniques would end up with drinking water essentially. They are terribly expensive, so much so that places with much more margin to operate than I understand we have here -- there may be other methods --

MR. DeFALCO: Right.

MR. METZLER: I didn't want to make a speech, but I just wanted to know what you had in mind.

MR. STEIN: On that last point again, I don't want to spread the record because we have this worked out.

Would you say, Paul, that if we are going to get at the nutrients, the most reasonable thing to do at the present stage of the art might be to work on the phosphates?

MR. DeFALCO: Right.

MR. STEIN: And wouldn't you say that the removal of the nitrates, while we can do it in the laboratory, in practice, under the present technique, if we are talking about carbon adsorption, it might be so

Paul DeFalco

expensive that it would not really be feasible?

MR. DeFALCO: Right.

Essentially, the phosphates are the primary problem. We have to tackle these, of course.

MR. STEIN: Let me see if you can agree with this: As I understand it, if we put in phosphates or nitrates, this is like fertilizing your lawn. The difficulty is in removing nitrates. Nitrogen and nitrates are rather ubiquitous; they are found everywhere. We have tried to keep them out, but we have not been very successful.

The scientific investigators have discovered that if we get one of the key elements, the phosphates, we can control that. The likelihood is that if we can keep one of the essential elements out, we are going to stop the algal or weed growth.

We don't seem to have a likely breakthrough economically to control nitrates, but at least the investigators do feel they are on the verge.

I think Dwight has raised the question very properly. I am not sure we have a foolproof system anywhere throughout the country that is not going to be expensive, but we are on the verge of being able to come up with a system that can materially remove the phosphates, and we should concentrate on phosphates.

Is that correct?

MR. DeFALCO: Correct -- absolutely correct.

MR. STEIN: All right. Thank you.

Do you have any more questions?

MR. METZLER: No. All I want to do is indicate that this is a very constructive statement, and my questions really were to the details of the statement, Paul.

MR. DeFALCO: Right. I appreciate that.

MR. STEIN: Mr. Klashman?

MR. KLASHMAN: I have no further questions.

MR. STEIN: I just want to emphasize one more point here, because I think while Mr. Metzler brought this out, this is a key point in the economic damage.

When I hear these dockside prices of shellfish, the going price when I have lunch -- and I don't eat in one place all the time in Washington -- but at least in the circuit of restaurants I go to in Washington it is \$1.00 or \$1.25 for a half a dozen clams on the half-shell. When we are talking in terms of economic value, as I regard it, we are not just talking about the dock price paid the shellfish farmer here, but we have to multiply that.

We will hear from the shellfish people later. As you know, we were in the same agency for years, but now we are split. They are still in the Public Health Service and we are in the Department of the Interior, but we still

work very closely together.

They have indicated on the basis of one study -- and again I don't want to extrapolate -- in Florida there was a factor of 10 on the economy. I think they were being conservative in the Florida study, but if this is so, if this price of two and a half million is correct, the impact on this area is in the magnitude of a loss of \$25 million a year. That is pretty big.

Are there any further questions or comments?

MR. KLASHMAN: No, I have none.

MR. STEIN: If not, before we hear the other Federal representatives, we will recess for five minutes.

(Whereupon a recess was had.)

MR. STEIN: May we reconvene?

We would like to ask all those here who have not registered, to register in the back when you have an opportunity to do so.

During the recess, the conferees have been together. Our agenda, as you know, is flexible, in order to accommodate everyone whom we can.

Instead of the rest of the Federal people being called next, we are going to call on Mr. Metzler, the conferee for New York State, because he has a few people who have to make a statement at this time, as they have other

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compelling commitments.

Mr. Metzler?

MR. METZLER: Thank you, Mr. Stein.

The initial statement for the State of New York will be made by Commissioner of Health, Dr. Hollis Ingraham.

STATEMENT OF DR. HOLLIS S. INGRAHAM,
STATE HEALTH COMMISSIONER, DEPARTMENT
OF HEALTH, STATE OF NEW YORK

DR. INGRAHAM: Distinguished members of the panel, ladies and gentlemen:

I am Hollis S. Ingraham, Commissioner of Health of the State of New York. I am representing Governor Nelson A. Rockefeller and bring you his assurance of his great interest in the subject of this conference. As Commissioner of Health, I am also a member of the New York State Water Resources Commission. At this conference, I am also representing the Commission.

In New York State, water resource policy is formulated by the Water Resources Commission, while the State Health Department is directly responsible for water pollution control.

Today I will discuss with you the broad aspects

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of the conditions of Moriches Bay and the eastern section of Great South Bay and will describe the corrective actions the State has taken to redeem these waters. Later in the conference, staff members of the State Health Department and of the State Conservation Department will discuss the study area in much greater detail. These presentations will be made by:

First, Mr. F. W. Montanari, Assistant Commissioner, Water Resources Planning, New York State Conservation Department.

Mr. Robert D. Hennigan, Director, Bureau of Water Resource Service, New York State Health Department.

Mr. David Wallace, Director, Bureau of Marine Fisheries, New York State Conservation Department.

As you know, the bay waters under consideration in this conference are about 17 miles long. They are paralleled on the north by rural farm land, with the exception of several small villages and hamlets, and on the south by a narrow strip of land commonly known as the barrier beaches.

Although the study area is still primarily rural and is geographically small, the volume of pollution issuing from its shores is much greater than is normally expected for a rural farm area of this size.

While there are several sources of pollution in the study area, the most significant source is that of the duck farm industry.

More than 30 duck farms dump more than 30 million gallons of duck waste water into these waters each day. They account for more than 40 times the total of other waste water being discharged directly to the surface waters in this study area. Many coves, inlets and small streams are completely clogged with black, rotting duck wastes. Over the years duck waste deposits in some of these waters have reached depths of more than 10 feet.

Studies indicate that these wastes have severely curtailed the production of shellfish in the bay waters. The waste deposits, plus the rotting algae nurtured by the wastes, helped to smother the oyster beds. This is a classic example of conflict between two industries in their need for water. The duck farm industry on Long Island represents more than 60 percent of the production in the nation, but both industries are vital to the State's economy and we must insure that each is served fairly and equitably. This may create some burden for the duck industry, but they have a responsibility which they must meet.

I must emphasize at this point that while duck

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farm pollution is a large contributor to the decline of the shellfish industry it is not the sole factor responsible for the destruction of the oysters. Studies of the hydrologic conditions of the bay waters indicate that poor circulation patterns also played a large part in the decline of the oyster beds. If the shellfish industry is to be revitalized, pollution control will not be the entire answer. There is further need for channel and inlet maintenance to insure adequate circulation of the bay waters.

Other sources of pollution reaching the bay waters include human wastes being discharged to both the surface and ground waters of the study area.

At present, the most serious human waste discharges are those dumping into the ground waters by way of septic tank and cesspool systems. These wastes leach into the ground waters and eventually find their way into the bays.

A study of the entire Great South Bay, made by the New York State Department of Health in the early sixties, concluded that, and I quote:

"The waters of Great South Bay are abnormally enriched by nutrients having their principal origin in organic wastes produced by human activities. These wastes come largely from

"sewage effluents reaching the ground water which is discharged to the bay."

The waters of these bays also serve as a playground for the many thousands of people who enjoy boating and sport fishing in Long Island's waters. But this is also a source of pollution. The total waste load contributed by this source is not known. However, the extent of the problem can be appreciated since it is estimated that more than 100,000 water craft utilize Long Island waters, a great percentage of which discharge raw human wastes directly to the waters they are using.

It is evident that the pollution problem in the conference study area is very large and very complex. In this respect, it is not unlike the problems which face us throughout the State, and for that matter, the problems which face the people throughout the nation.

What are we in New York State doing about these problems?

Obviously, the challenge is great. Meeting it effectively has required years of planning and study that have now culminated in Governor Rockefeller's Pure Waters Program, a water pollution control program which is second to none in the nation.

With reference to Moriches Bay and the eastern

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section of Great South Bay, a sewage study of the five western townships of Suffolk County has been completed, as part of the Pure Waters Program, which recommends the formation of a county sewer agency. State funds to the extent of \$661,000 have been contributed to the county. Now being negotiated is a comprehensive sewage study of the five eastern towns of Suffolk County. These studies will provide the technical answers necessary for the elimination of the municipal pollution in this part of Long Island.

In addition, a comprehensive water study is now under way in Suffolk County. State funds to the extent of \$340,000 have been contributed for this purpose. The county is guaranteed an expenditure of \$450,000 to carry this study even beyond the scope of the normal State-sponsored study.

The Pure Waters Act of 1965 provides for 30 percent State aid for construction of municipal sewage treatment facilities, and, if necessary, a State advance of an additional 30 percent to cover the Federal share. In New York State, 60 percent aid is guaranteed to communities for constructing sewage treatment facilities.

Another very important feature of the Pure Waters Program has been the streamlining of enforcement laws. In the past, we have continually exercised the Department's enforcement powers against pollution. But these powers

were severely limited by delaying devices in the law which enabled the polluter to hold us off for years. These road-blocks are a thing of the past. The Pure Waters Program brought with it effective legal powers by which we can quickly take initial legal measures against known polluters. We began scheduling hearings the day the new laws were put on the books, a little over a year ago. Since that time, we have held 180 hearings and have placed over 140 polluters under orders to abate their pollution.

With specific reference to this conference, all duck farms are under orders which require the duck farms to abate their pollution by April 30, 1968. The orders call for upgrading treatment to remove 85 percent of the biochemical oxygen demand and 85 percent of suspended solids, and for the substantial removal of phosphates from their wastes.

This upgrading of treatment is the fourth and final phase of a duck pollution abatement program initiated in the 1950's. Phase 1 called for removal of the ducks from the open natural watercourses. Phase 2 for the construction of settling facilities, and Phase 3 for the disinfection of wastes. Phases 1 and 2 have been met. Phase 3 is integrated into Phase 4 under the above orders.

This year an act to amend the navigation law was

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passed which will prohibit the discharge of inadequately treated sewage from boats on the waters of the State.

Research is also vital to the Pure Waters Program. Currently, some 15 projects are under way in the State. This year alone, research contracts totaling over \$300,000 were initiated. These projects include investigations of better and more efficient methods of waste treatment, and studies of algae to learn more about their behavior and how they may be controlled. Worthy of special note is an investigation of the reclamation and injection of sewage into groundwaters to prevent salt water intrusion, a study which is very vital to Long Island since it is dependent solely upon groundwater for its water supply.

Also, in the early 50's a State-financed duck waste study was undertaken to learn more about the basic problems of duck wastes and their treatment.

An additional study to find workable conditions for treatment of the duck wastes was recently completed by a consulting engineer. This study was financed jointly by the Suffolk County Department of Health and the Long Island Duck Farms Cooperative, Inc. I would like to take this opportunity to thank both organizations for a fine job. The duck farm industry must accept its responsibility and face up to the water pollution problem, and this study is solid

proof that they are willing to do so.

I believe this brief outline of our activities shows that we are determined to meet our responsibilities to stop pollution at its source. The tools given us by Governor Rockefeller's Pure Waters Program have provided swift and sure means by which we are assured of successfully carrying out this task.

I must remind you, however, that once the pollution of Moriches Bay and Great South Bay has been stopped, the battle will not have been completely won.

We must still remove the sludge deposits from the bay waters. Unless removed, they will continue to provide food for the algae. The algae will grow, die and settle, in an unending cycle, unless these deposits are eliminated.

We also must improve the hydrologic conditions throughout the bay waters. If this is not done, the present limited circulation will continue to affect the quality of these waters.

What can be done? Cooperative Federal, State and local action is obviously the answer. The State of New York will see to it that the pollution is stopped. However, we call for help from the Federal Government to maintain the barrier beaches and channels in a manner that will

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provide the necessary hydrologic improvements, and we call for local help to dredge or otherwise remove the sludge deposits from the many coves, inlets and tributary streams of the area.

In closing, may I say, for Governor Rockefeller, that New York State welcomes today's conference as another indication of the spirit of Federal, State and local cooperation that is so necessary if these waters are to be restored to their former condition.

Thank you, gentlemen.

MR. STEIN: Thank you, Doctor.

Are there any comments or questions?

Mr. Metzler?

MR. METZLER: Did you want to comment, Dr. Ingraham, on the conclusions that were reached as a result of --

VOICES: Can't hear you.

MR. METZLER: I wondered if, in addition to the prepared statement, Dr. Ingraham, you might want to comment on the cooperation in connection with the pilot plant project which is nearing completion, and will shortly be placed in operation to study some aspects of treating of the duck wastes?

DR. INGRAHAM: I think that you are getting a

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little beyond my technical capacities there, Mr. Metzler, to comment very effectively on this pilot program. I would much prefer to leave that to Mr. Hennigan when he takes the stand.

MR. METZLER: All right.

MR. STEIN: Do you have any questions?

MR. KLASHMAN: No, I have no questions.

MR. STEIN: Doctor, I too would like to thank you for the spirit of cooperation in this.

I do think we have substantial agreement, as far as I can see, in the analysis of the problem both in your statement and in the Federal statement.

The problem cannot be oversimplified. We do have human wastes coming into the groundwater. We do have the problem of duck wastes. We have a question here of sludge deposits, and we have a question of keeping the circulation pattern going in the bay.

Unless we attack all those problems, it seems from the statements both of the State and Federal people, that we are not going to achieve optimum results. It seems to me even at this early stage that the attack on all those problems is going to call for extensive cooperation of Federal, State or local authorities.

Thank you very much, Doctor.

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DR. INGRAHAM: Thank you.

MR. METZLER: Mr. Chairman, I thought that Dr. Ingraham might want to comment on a matter that he handled just yesterday in connection with an appeal we had over the week-end really to participate more actively in the pilot plant program here. We are providing a chemist to do analytical work and determine the effectiveness of the treatment processes during about a six-month period. In addition, Dr. Ingraham personally led a search for some money so that we might be able to participate further in this and pay some of the operation and maintenance costs during that period of time.

I thought he would like to announce this here. Since he did not, if he doesn't mind, I will.

MR. STEIN: I also want to say we appreciate New York's statement that their program was second to none. We appreciate your delicacy, because at a recent conference, one of the midwestern States said that not only was their program second to none, but particularly it was better than two of its neighboring States that it named.

While this has nothing to do with the conference, we can hardly get down to business after that announcement.

Thank you.

MR. METZLER: As you know, we are concerned

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about cleaning up pollution in New York State, and we don't propose to be making many comments about our neighbors until we are in better shape than we are in now.

I appreciate the opportunity to present the County Executive from our host county here, Suffolk County, Mr. Dennison, who has shown a deep awareness of the water problems and the importance of water to Suffolk County, and has led the county in its cooperative work leading to the sewerage study.

He has asked to be put on now because of the other commitments he has today.

Mr. Dennison, it is a pleasure to welcome you here this morning.

STATEMENT OF H. LEE DENNISON, COUNTY
EXECUTIVE, SUFFOLK COUNTY, NEW YORK

MR. DENNISON: Members of the panel, Dr. Ingraham, friends -- at least, temporary friends of the gathering:

You know, it is quite a pleasure for me to be legal for a change in bringing up what has been for seven years my favorite after-lunch subject of the need for public sewers.

I welcome this group here, but I must say at the same time it is to me a sad commentary on something or another that the Federal and the State people have to come into this county to undertake to meet problems that I believe should have been undertaken years ago by our own local agencies of government.

There has been a failure -- no question about it -- through these past years, in our much-wanted local home rule. There can be no excuse, because the tremendous growth we have had in this county for the last fifteen years has been going on for that long. During all of these years the conditions of pollution considered here today, have existed.

The purpose of the meeting is, as it is spelled out, to have the Federal, State and local governments try to work together to abate pollution.

The County of Suffolk has not been exactly idle these past years. The area in question has been under many diverse jurisdictions. There have been the local failures, of course, and failures, as I call it, in, shall we say, political intent and purpose and action. There has been failure in coordination among the diverse agencies, and, as a result, there has been little or no accomplishment in the abatement of pollution.

These failures naturally have been very costly.

We have not been able to reach all of our people in timeliness about this cost.

I will give great credit here where credit is due to the many agencies or civic organizations and conservationist groups and the League of Women Voters, who have been trying all these years to get constructive action.

One of the catalysts for action out of which stemmed this meeting I think probably has been the creation of the Fire Island National Seashore, which borders on the area in question. For this I am very thankful.

Let me say that Suffolk all these past years -- at least, there has been a seven-year campaign by diverse groups and the executive office concerning the need for public sewage disposal, particularly in the western half of the county, in which the population is now approaching something like 900,000 people. There is now, as explained by Dr. Ingraham, a public sewage disposal program in process, and here again, thanks to the contributions -- a gift by the State of New York -- in the amount of \$660,000 to get this program under way.

As explained also by Dr. Ingraham, I am empowered to say that in our recent undertaking of surveys of our fresh water resources, the State will contribute 300-some-thousand dollars, but the county too will contribute much

more than this to carry this study beyond the State program.

The sewage disposal program itself has been so long delayed, and recently delayed these past years by diverse reasons, that I can report, I think, that District No. 1 will be up for public referendum probably by January or February. This is the westernmost district of the program. Actually, construction on District No. 1 can't possibly begin before two and a half years from now. District No. 2, next to it coming eastward, can't possibly begin before three years from now. District No. 3, still coming eastward and approaching the area under consideration here today, will not be under construction for probably something like four years. These three or four districts on the south shore of the county will take something like twenty years to complete, so that you see the problem we are trying to meet here has to be long-range, since human sewage is contributory in great part to the problem.

A great deal has been said about pollution of these areas by the duck farms. Here again, it has been a running battle for the last seven years by different groups of people and the executive office -- a battle that began actually in the early 1950's, when the State passed the first law trying to abate pollution by the ducks.

I must take issue with the State during these

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years, not only with the way the original law was written, but in the carrying out or implementation of this law.

For example, our local Department of Health, charged with the responsibility for inspection of the duck farms and that sort of thing through all these past ten years, has repeatedly, time after time, reported violations to the State Attorney General's Office. However, I have to report today that pollution today is as it was in the early 1950's.

The law itself carried a safety clause for the industry, whereby any duck farmer could plead poverty. This again was contributory to little or nothing ever being accomplished against the pollution by the duck farms.

Recently a new program has been undertaken, a joint venture by the industry, county, Department of Health, and the County of Suffolk, with cooperative help this time from the local agency of government, trying to get up some kind of program of sewage disposal facilities for ducks similar to humans.

Now, I have been so upset is hardly the word, but in the struggle against this pollution over these past years, I finally, not too long ago, reached one simple conclusion, a conclusion that in spite of our recent new efforts for the construction of disposal plants for ducks -- in spite of these efforts, I still must repeat my conclusion

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that there is only one answer to pollution by the duck farms. That is, to have no ducks.

At this point, the communities, the towns and the county have to balance what is a tremendously important and big industry of this county, employing certain numbers of people, against the adverse effects of the industry and the value of lands, recreation, the boating industry, shellfish and the fisheries -- everything that is adversely affected by the duck industry as such.

The actual answer to this will have to come out of our recent meetings with the State. We were all in Albany together last Friday. I say here again publicly that while possibly this new effort, this new splurge of effort on the part of everyone concerned, including the industry, may eventually be the answer. We can't wait for the answer any longer. We can't, for one simple reason: As everybody knows, we are the fastest growing area in this country. We now have a million people. At the present rate of growth, we will have two million people by 1982. We simply can't wait for anybody or anything to meet the problems of sudden, instant growth.

There are many things that could, I hope, come out of this meeting, and I am talking here about additional Federal and State cooperation, which is why we are here.

For example, one of the contributory factors, I believe, as a professional engineer, has been concerned with Shinnecock and the Moriches inlets, the inlets that were created, one in 1934 and one in 1938 by hurricane action. These inlets contribute a great deal toward the fresh water and salinity part of the Great South Bay, both Shinnecock, Moriches and Great South Bay itself.

However, we have had requests in Washington for the improvement and the rebuilding of Shinnecock and Moriches inlets since 1960. The plans are all ready. The Federal Corps of Engineers is ready. The County of Suffolk has indicated its desire for these projects, its willingness to contribute its share; but, for some reason or another, in these past half a dozen years, we have not been able to get these two particularly badly needed projects into, shall we say, the Federal pork barrel in Washington.

These we need badly. Possibly the strength of the Department of the Interior can help us to get these projects under way.

Again, as a part of these particular inlets, we are in the process with the Federal Government and the State of New York of a beach erosion prevention control program. It is under way successfully with the new pilot projects, but we need this project extended just as fast as

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we can get it extended, not only to protect against erosion, but for another very important reason, that part of this program would mean the building of dunes in back of groin construction out in the ocean.

Well, coming through these two inlets, Shinnecock and Moriches Inlet, since they were created, has been sand from the westward movement of the ocean. There are now deposited in the inner bays not less than 50 million tons of sand adjacent to these inlets that has got to be cleaned out.

So that I am asking here of the Department of the Interior to help us in Washington to get a little expeditious program going on in this beach erosion program, so that we can get at the removal of these 50 million tons of interior sand.

There is, after creating the National Seashore, provision possibly for a new inlet, and I would ask that this be studied and hopefully expedited, all pointed toward the one direction, that of the solution of the pollution and stagnation in areas of the whole Great South Bay area.

Of course, we also need greatly expanded channel dredging programs on the part of the Federal and State governments. We are undertaking, at our own local level, tremendous programs of channel dredging.

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We have one of the biggest industries in the State in pleasure boating in this area. We need new programs, possibly with the State and with the Federal Government, for the control of and the elimination of stagnant areas, and we have these along the shorelines.

We certainly need some studies and programs for better control of insecticides, D.D.T., and that sort of thing.

If we are going to have the duck industry, certainly we need shore legislation, shore enforcement, and shore programs for real action.

There must be, because of the diverse countless agencies of local government, where there has been, in the past, a lack of coordination, a lack of working together -- there must be, I am of the firm opinion now, some kind of central, overall administration for planning and coordination and administration of all of our bay waters, all of our boating areas, and channels, and marinas, and fisheries, as far as the pollution is concerned.

There was created in the executive office some time ago a citizens' task force -- we call it our Citizens' Conservation Commission -- and we had in mind at this time that this could eventually become the official coordinating agency for conservation for all of our resources, not

particularly Great South Bay, but for all of the waters of the county and all of our matters of conservation. There has been no action on this program yet. We have, as I say, only hopes for that this possibly could be the coordinating agency.

Here again, if we run into problems with local home rule and local independencies, possibly the State and the Federal Governments will have to come in to help us create some kind of central overall administration for all of these purposes.

I would like to say here, on behalf of the County of Suffolk, that, as I have tried to say, we have not been exactly idle. One of our best programs, these past half dozen years, has been the acquisition of public lands, a great part of which have been wet lands. Most important, more than half of them have been comprised of the fresh water river drainage areas of the county. We now have all of these generally in public hands at the county level. This to me has been the best step toward what this meeting has been called for of any the county has yet undertaken.

I must take some issue with Dr. Ingraham about his State's new billion dollar clean waters program, because again, as an engineer, I don't think it is nearly enough. To me it is about like a penny on a meat block when you

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want to buy a pound of meat. A billion dollars is to me only a start of what will have to be eventually spent really to meet the problem. I say that particularly because we are going to need almost that whole billion dollars right here in Suffolk County before we really meet the problems for which we are here gathered.

There isn't any question about it. Figure it up. Figure up the cost of your sewage disposal plant, just to begin with, just in the western half of this county.

Then there is the little matter of a six-year program to have fresh waters throughout the State. By that, I assume you can take a teacup in the middle of the Hudson River and drink it.

Well, six years from now, I don't think I want to, because, in the first place, the program has to do only or generally, mainly, with disposal of human sewage through local agencies of government. and there isn't anything in there for industry, which to me also constitutes about half the pollution problem.

I say this here today because we ran into this problem in Albany last Friday, whereby we were trying to get some help for the duck industry from the State, for their pilot plant, and so far I don't believe we are going to have any answers that the State is going to give us any aid for

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the industry. If this is true, then it is true State-wide, and the industries up and down the rivers of this State, the Hudson, for example -- the pollution is going to exist for some time yet, particularly if it is left entirely to industry without help.

I must say here that I am thankful for this meeting, if only as a catalyst, hopefully, for action. The problem is the most serious we face in this county in the face of this tremendous growth, and it is most serious because it affects any way you can think of it, the most priceless asset we have in this county, which is waterfront and the adjacent waters surrounding the County of Suffolk.

I must say one other thing, as far as the county is concerned. We are trying, hopefully again, to work on a regional basis in these problems. There has been recently created, as the panel may know, a bi-county planning agency, which will undertake the study of the resources of Nassau, our tiny little neighbor to the west, and Suffolk, together as a region. This will include, of course, all of the water resources in Great South Bay. We are moving along these lines regionally. We have been accomplishing, at least, partial things in these past years.

I want to thank this group for being here today.

I want to say one other thing, that the office of the County Executive is open any time, any way, in which

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we can be of help to expedite, to bring information to or action to this group, hopefully, for accomplishment.

Thank you.

MR. STEIN: Thank you, Mr. Dennison, for a very thorough and provocative statement.

There may be some comments or questions, if you want to stay.

Mr. Metzler?

MR. DENNISON: I can't usually get out without a fight.

(Laughter.)

MR. METZLER: Well, I have learned that when you are a newcomer to an area, you don't take on someone who has established the kind of leadership you have exerted here, so I have no intention of fighting with you today, sir.

I wanted to say specifically on your point of your being in Albany Friday, that I am sorry I could not be there and did not know that you were there, and so had no opportunity to be there; but that Dr. Ingraham did find some money to pay the maintenance and operation costs of your pilot project, in addition to the chemist who will be assigned to this. So we will be cooperative with you. I hope we are a full partner in this, looking for a solution. I know it must be a terrible surprise to citizens to come to

H. Lee Dennison

Albany and find out that all of that billion dollars isn't there in a desk drawer, and we can use it.

MR. DENNISON: We are doing all right. We got \$660,000 already for sewage.

MR. STEIN: You know, I rarely get out without a fight either, but I think we have several points.

The Corps of Engineers representatives are here. Of course, I spent most of my professional life in this business going before the Public Works Committees.

I would like to say that we and the Corps have been working together for years. We will continue to work together, but I do think -- and here is the point I want to make, which I think is very important -- if we are going to support any stabilization or dredging process, we can't do that just from our point of view or the Interior point of view as just a dredging and stabilization process. We have to do this as part of a total picture.

If we can develop a program that will clean up domestic pollution from your septic tanks and your seepage from the duck farms, and we can work on the sludge deposits, you can be assured that if, to improve the circulation, you need stabilization of these outlets, the Department of

H. Lee Dennison

the Interior will do everything it can, and will work very closely with the Corps to see that those projects are done.

I may say also that we go before these committees and the committees know us very well and listen to us; but we must go there as part of a total picture.

I just want to say one more thing for your county, because I have been involved in this too. In 1957, Mr. Klashman, who was then in New York -- he has since been to Denver and back and we are still faced with the same problem -- requested a grant for the duck farm wastes in the area. At that time I was involved in this, because I made or at least gave the opinion that under the Federal law we could give you the money.

It is now 1966. You haven't had your final payment on the plant. The plant is not working.

It is true this was primary treatment at that time, and the sights were higher. I would hope if you work with the State people in the demonstration project, and with the Federal people, because we are prepared to work with you, in the last analysis, in order for any of these things to work out, the county must do it. It is the day-to-day operation of your local people. It is no use if we give you money for a demonstration plant and you won't run it.

W. L. Burns

All right. Thank you.

Mr. Metzler?

MR. METZLER: Mr. Chairman, I would like to present the Honorable William L. Burns for a brief statement here. He has a commitment to sell a parcel of land, and I wouldn't want to interfere with any business transactions this afternoon. He has asked if he could be heard for a brief statement.

He is a member of the Assembly, and a very interested member of the Legislature in water resources.

STATEMENT OF ASSEMBLYMAN WILLIAM L. BURNS,
SEVENTH ASSEMBLY DISTRICT, STATE OF NEW YORK

MR. BURNS: Thank you, sir.

As Mr. Metzler said, I am Assemblyman William L. Burns from the Seventh Assembly District in the western part of Suffolk County.

I am here today more as an observer than as a participant in this hearing. Unfortunately, my letter of invitation, under date of September 13, did not arrive until only yesterday, leaving me with very little time to prepare.

I have lived all my life on the west end of

W. L. Burns

Great South Bay. We have had problems of pollution, and with the expanded population our problems are growing. All of us in western Suffolk County are aware that we must be militant in battling against the threat of water pollution.

Just recently, I was appointed a member of the New York State Temporary Commission on Water Resources Planning. This position brings me even closer to the problem of water pollution.

I would like to listen to some of the testimony and to learn. I would also like to receive a copy of the complete transcript of these hearings, so that I may report back to the Water Resources Planning Commission. While the Commission's chief objective is to maintain our pure fresh waters, I think this objective is related because certainly if our salt water estuaries are allowed to become polluted it would follow, especially here in eastern Suffolk County, that our fresh water supply would be harmed.

Thank you very much.

MR. STEIN: Thank you.

Are there any comments or questions?

(No response.)

MR. STEIN: If not, we will have one more participant before we recess for lunch.

Mr. Klashman, would you want to introduce him?

M. Abelson

MR. KLASHMAN: Yes. Mr. Mark Abelson, who is the Regional Coordinator for the Northeast Region of the Department of the Interior.

Mr. Abelson.

STATEMENT OF MARK ABELSON, REGIONAL
COORDINATOR, UNITED STATES DEPARTMENT
OF THE INTERIOR

MR. ABELSON: Mr. Chairman, conferees, ladies and gentlemen:

Before I give my statement, I would like to add something to the remarks of Mr. Dennison concerning the deposits of sand in the inlets.

We are working closely, of course, with the Corps of Engineers on all their projects, as far as Fire Island is concerned. Also, you may be interested in the Act setting up the Fire Island National Seashore, where Section 8(b) states that:

"The Secretary may also contribute the necessary land which may be required at any future date for the construction of one new inlet across Fire Island in such location as may be feasible, in accordance with plans for such

M. Abelson

"an inlet which are mutually acceptable to the Secretary of the Interior and the Secretary of the Army, and that it is consistent with the purposes of this Act."

I am Mark Abelson, Regional Coordinator for the Northeast Region, United States Department of the Interior.

The Department of the Interior is the nation's primary agency charged with responsibility for a wide variety of programs for the management, conservation and development of the natural resources which benefit every section of the nation. For this reason it can best be described as a "Department of Natural Resources."

The Department is made up of some three dozen bureaus and offices whose functions and responsibilities cover the entire range of natural and human resources. In the Northeast, coordination of these functions and responsibilities is accomplished through my office in Boston.

The broad scope of the Department's functions is indicated by the following brief listing of its principal activities: The Department has direct responsibility for some 550 million acres of Federally owned lands and administers the mining and mineral leasing laws on other lands; it irrigates more than 8 million acres of reclaimed lands in the West; manages hydroelectric power systems with

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a capacity of approximately 13 million kilowatts; protects fish and wildlife resources; conserves hundreds of vital scenic, historic, and park areas; coordinates and advances outdoor recreation programs; conducts geologic research, hydrologic investigations, and topographic surveys; promotes more efficient mining and processing methods and mine safety; encourages mineral exploration and conducts mineral, fuel and saline water research; provides grants for water resources research; administers oil import programs; operates helium plants and the Alaska Railroad; works for the welfare of about 180,000 people in areas administered by the United States; exercises trusteeship for the well-being of about 380,000 Indians, Aleuts and Eskimos along with resource management on about 50 million acres of Indian-owned lands; and since May 10th of this year, administers grants, conducts research, and administers enforcement provisions for water pollution control.

In carrying out these vital responsibilities for sound management of natural resources, the Department encourages efficient resource use; works to assure that a sound resource base is provided to meet the needs of our expanding economy, our national security, and our future generations; promotes an equitable distribution of benefits from nationally-owned resources; and seeks to prevent

wasteful exploitation of resources.

The Department has a definite interest in all waters of the country and in the entire pollution problem.

Water, and its associated opportunities and problems, ignore State, regional and international boundaries. It is important that the interrelationships of water be so recognized and that the efforts of all concerned be aimed at harmonious, comprehensive, and coordinated plans for the best use of this valuable resource.

The focus of the efforts of the Department of the Interior is directed to the maintenance of adequate national water supplies and adequate water quality for whatever uses man may wish to make of this resource. The Interior approach emphasizes the coordination and interrelation between uses and the effect of these uses on management and quality of the total water supply system. We hope we can make it possible for the country to remain as an affluent, not the effluent society.

Maintenance of water quality involves not only the quality levels of human consumption, but also quality levels for consumption by other animal and plant life, for development of other natural resources, and for industrial processes. These quality considerations are interrelated. They can be understood and controlled best from the point

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of view of water as a resource, rather than from the point of view of a particular quality need.

All waters in rivers, lakes, bays and estuaries should be as clean as possible, not as unclean as admissible. In handling water problems over a period of years, the Department has accumulated a great deal of experience. It has the facilities and the qualified manpower to deal with a wide variety of water problems. The broad interests of the Department in water quality and related problems in the Moriches Bay and Great South Bay are reflected in the Department's agencies, including the Water Pollution Control Administration, represented at this conference. While each of these agencies has its own program, the Department exercises the administration necessary to assure that all programs are coordinated to achieve the best overall results.

Interior bureaus, in addition to the Water Pollution Control Administration, carry on water quality studies related to the physical, chemical and biological adequacy of our water resources. These studies and the associated research are chiefly those in which the skills and required knowledge are based on geology, chemistry, hydrology, engineering, and other physical science aspects of water management. Interior's water quality research extends beyond water supply to the study of environments

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adequate for the propagation, production and control of both fish and wildlife resources, and for water-based recreation.

In common with many others, the Department of the Interior has interests and responsibilities in the economic and social aspects of water quality management. We recognize that such factors as quantitative requirements, competitive uses, and marketability of water and associated products must be given consideration in all plans. Interior takes account of the economic impact and other values that protection of water quality will have on the communities, the basin, the State and the Nation.

The Department is concerned with the conservation and development of commercial fishery resources in this area. Of major interest is the maintenance of commercial shellfishery resources as related to the natural hard clam fishery of the area, and the development of artificial propagation techniques and facilities for hard clam and oyster resources. All activity in this area is coordinated closely with the shellfish industry and the State of New York Conservation Department. Any pollutant which impairs or downgrades the water quality of the area will have adverse effects on these activities, and will be detrimental to the commercial fishery resources.

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Under authority of the Fish and Wildlife Coordination Act, the Department reports on Federally constructed projects, or projects that are constructed under Federal permit. Reports include those concerned with navigation, beach erosion control, and hurricane protection. In cooperation with the New York State Conservation Department, Interior's objective is the conservation and development of commercial fishery resources. Any pollution abatement which might take place in the area would enhance habitat conditions for these resources.

We note that shellfish has a recreational aspect as well as a commercial one. The closure of practically the entire northern shoreline of Great South Bay and Moriches Bay because of polluted conditions prevents residents and vacationers from utilizing this resource by digging a mess of clams. One of the joys of visiting the shore has been eliminated.

While the major sport fishing occurs in and along channels in the relatively unpolluted parts of the bays, people are reluctant, from esthetic and health viewpoints, to fish those closed segments of the rivers and inshore areas which could furnish local shore fishing and boat fishing opportunity.

Pollution acts as a fertilizing element in these

bays and the basic productivity is very high. It is a productivity, however, that cannot be fully utilized because the seafood produced has not only incorporated the nutrient part of the pollutants, but very often their bacterial load. If these health hazards can be eliminated, then sportsmen can make full use of the bountiful production of shellfish and finfish in these bays.

Much of the bay lies outside the area authorized for Fire Island National Seashore, but for 3⁴ miles along the seashore's northern boundary, the bay's influence is so much a part of the seashore's environment as to make them inseparable.

The quality of the natural environment of the island and its surroundings will be the final measure of enjoyment to the visitor, as well as the value it can render to scientist and scholar. The preservation and protection of the natural biologic communities, both land and marine, associated with the seashore, depends, to a large degree, on the maintenance of pollution-free waters in Great South Bay.

In conclusion, I would like to say that we urge that steps will be taken to eliminate from Moriches and Great South Bay those domestic, agricultural and industrial pollutants which detract from the full public enjoyment of

M. Abelson

the aquatic resources of these areas.

Thank you.

MR. STEIN: Thank you.

Are there any comments or questions on Mr. Abelson's statement?

(No response.)

MR. STEIN: Thank you very much.

You know, maybe I should make one last comment before we go.

Mr. Dennison has left, but it seems to me that I am not persuaded yet that the way to handle this is to get rid of an industry. Anyone can clean up pollution by shutting down an industry or padlocking city hall.

It seems to me the challenge we face in modern times in pollution control is maintaining the industry if we can, with also the opportunity for population growth. In my opinion, we can have both industry and population growth and clean waters, if we put our minds to it.

Now, maybe we are wrong here, but I think this is one of the issues that, as we develop this conference, we should keep our eye on.

Mr. Metzler, do you have a further comment?

MR. METZLER: I would like to acknowledge that Assemblyman Peter J. Costigan is here, and that he is very

much interested in the matter that is under discussion today.

He did not receive his announcement in time to permit him to prepare a statement in advance, and I would like to say to you, sir, that the record will stay open for ten days or so. In the event you would like to submit a statement, it not only will be received, but it will be carefully considered.

I am sorry that your announcement did not reach you in time to permit you to make the statement that you wanted to.

MR. STEIN: Thank you.

We will stand recessed until half past one.

(Whereupon, at 12:15 p.m., a luncheon recess was taken.)

AFTERNOON SESSION

(1:55 p.m.)

MR. STEIN: May we reconvene?

I would like to read a telegram first. It says:

"Only pressures of my chairmanship of Tactical Aircraft Subcommittee now in executive session keep me from joining you at opening today of joint Federal-State effort arrive at solutions for desperately polluted waters of Great South Bay, Moriches and Shinnecock Bays, called by Secretary of the Interior Stewart Udall at the request of Senator Kennedy and this Congressman. The reports that will be presented over the next three days by shellfishermen, conservationists, government officials, will, I am sure, point up urgent necessity of enforcing some of the existing laws a little more enthusiastically. I am glad to report we were able to persuade the House Appropriations Committee to include \$100,000 toward the stabilization of Moriches Inlet, which I feel will play an important role in easing the pollution problem. I also hope for a new inlet across Fire Island for the same purpose, and pledge continued effort to bring this about, should your

"deliberations indicate its desirability.

Your cooperative activity has my blessing
and my promise of every effort within my
power to advance its findings.

Otis G. Pike

Member of Congress

First District State of New York."

We also have an announcement that I am going to
repeat later, as more people might come in.

The information I have now is that Senator
Robert Kennedy will be here tomorrow to make a statement.
Tentatively, we expect him at about 10:30 in the morning,
although we have to check with his office this evening to
confirm that, to be certain.

We will now continue with the rest of the
Federal presentation.

Mr. Klashman?

MR. KLASHMAN: I should now like to call on Mr.
Frank L. Panuzio, Chief of the Engineering Division, New
York District, Corps of Engineers.

Mr. Panuzio.

STATEMENT OF FRANK L. PANUZIO, CHIEF OF
ENGINEERING DIVISION OF NEW YORK DISTRICT,
CORPS OF ENGINEERS

F. L. Panuzio

MR. PANUZIO: I am Frank L. Panuzio, Chief of Engineering Division, New York District, Corps of Engineers. I am making this statement on behalf of Colonel R. T. Batson, the District Engineer, who regretfully found that he could not be present today due to prior commitments on other urgent matters requiring his personal attention.

The New York District includes for civil works the watersheds of Hudson River and Lake Champlain, and the many waterways draining into New York Harbor and Atlantic Ocean as far south as Manasquan Inlet, New Jersey, and as far east as Montauk Point, Long Island, New York. Not the least of these tributary waters under our jurisdiction are Moriches Bay and Great South Bay, extending for 33 miles along the south shore of Long Island, of which 17 miles are included in the area under consideration in this conference.

The civil functions of the Corps of Engineers along the coastal areas include the improvement of channels, anchorage areas and protective works such as breakwaters and jetties to preserve the entrances to the inner waterways from the open waters. The construction of jetties and groins to diminish the force of the seas breaking against the shores and the construction of sand dunes, and beach fill to halt the flooding caused by hurricanes and other extreme storms, are also a part of our civil works program.

F. L. Panuzio

Inland, the Corps of Engineers also constructs dams, reservoirs, floodwalls and other protective works to prevent the extensive damages from floods and develop allied natural resources uses. On the other hand, the Corps of Engineers also considers and approves, when appropriate, the plans of State and local governments, industry and individuals for construction and dredging in navigable waters. While our primary specific consideration must continue to be the benefit or effects of the work for navigation, flood control, beach erosion, and hurricane protection, the conservation and improvement of our natural resources, including the abatement of pollution, plays an important part in our considerations of the many civil works endeavors in which we take part.

The basic interest of the Corps of Engineers in pollution of navigable waters stems from its responsibility in the development of water resources of all rivers, bays and harbors within its boundaries. The most general law with respect to pollution, enforced by the Corps of Engineers, is Section 13 of the Rivers and Harbors Act of 3 March 1899. This law in essence states that it is unlawful to throw, discharge or deposit any refuse matter of any kind or description whatsoever other than that flowing from streets and sewers and passing therefrom in a liquid state,

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whereby navigation shall or may be impeded. You will note from the last phrase, that pollution in its broadest interpretation is not unlawful under the statute, but only the deposit of refuse material which is injurious to navigation. Under this statute, this distinction limits the role of the Corps of Engineers in the prevention of pollution.

However, the Corps of Engineers plays a significant part in pollution abatement in comprehensive natural resource studies that involve navigation, flood control, beach erosion, and hurricane protection. In this light it is effected through close coordination and participation of local, State and Federal agencies in these studies.

Current projects pertinent to this conference are: The Moriches Inlet Project, which provides for extension of jetties and a channel 200 feet wide and 10 feet deep at mean low water with sand bypassing facilities; the Fire Island Inlet to Jones Inlet Beach Erosion Project, which provides for the stabilization of the inlet and sand bypassing facilities; a model study is presently under way at Waterways Experiment Station, Vicksburg, Miss.; the Fire Island to Montauk Point Beach Erosion and Hurricane Project, which would require borrow of sand from inlets and inner bays that could have an effect on pollution.

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Current pertinent legislation with respect to seaweed problems was enacted by Section 302 of the Rivers and Harbors Act of 1965, which authorizes the Corps of Engineers to undertake a continuing program of aquatic plant control, including research for development of effective and economic control measures. The study of the seaweed problem in Great South Bay and Moriches would have to be programmed for appropriations.

Other pertinent pending legislation, introduced by Congressman Grover, is a bill, H. R. 10803, 89th Congress, 1st Session, which proposes that the Secretary of the Army, acting through the Chief of Engineers, conduct a complete investigation and study of water utilization and control of Great South Bay, including the waters of adjoining lesser bays and inlets. This investigation, if approved, would involve study of navigation, fisheries, flood control, control of noxious weeds, water pollution, water quality control, beach erosion and recreation. It would also authorize the construction, operation and maintenance of a hydraulic model on Long Island and an associated technical center. Such facilities would aid in the understanding of the factors contributing to the present problems in the area and in developing remedial measures.

The Corps of Engineers will continue to cooperate

with all local, State and Federal agencies to control pollution in streams to the extent of its authority and to ask for their cooperation on stream pollution matters in basin-wide studies for the conservation and development of water resources.

MR. STEIN: Thank you.

Are there any comments or questions?

Mr. Klashman?

MR. KLASHMAN: Mr. Panuzio, I would like to ask you a question, if I may.

Mr. Dennison, when he spoke before lunch, discussed the Moriches Inlet and what was being done about it, and he seemed to feel that the Federal Government had not been doing its part, as I understood him.

I wonder if you could expand on this and explain what the background on this is, and what the Corps of Engineers is doing and plans to do?

MR. PANUZIO: Well, first of all, probably to understand what happens and what the Federal Government's role is, you should understand the procedure by which Federal works are actually authorized.

When people want something, they go to their Congressman, and in this particular instance, they went to two of their Congressmen and they indicated that Moriches

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was a problem. It was a problem from the viewpoint of navigation, a problem from the viewpoint of recreation, and a problem from pollution.

Based on that, the Congressmen then actually, since there was an existing project, merely asked for a resolution. A resolution was given to the Committee on Public Works. The Committee on Public Works, in accordance with its desire, actually approved the resolution, and it became a matter of study.

The study then was handed to the Corps of Engineers, and since the Corps of Engineers is developed in divisions and districts, it finally got down to the pertinent district, which was the New York District.

A study was made, and it was found that Moriches Inlet required improvement from recreation, from navigation and from pollution considerations. A report was completed, and it was presented to Congress with recommendations of the Corps of Engineers that an improvement be made in Moriches Inlet. That project was approved by Congress. It becomes a project which can be considered for appropriations.

Now, the approval of the project does not automatically give it money. It merely makes it eligible for receipt of construction money.

Now, how do you get the construction money? The

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Congress of the United States is made up of representatives of the people. If the people want a project badly enough, again they get their Congressmen to see to it that moneys are appropriated for the project. Then, after the moneys are appropriated for the project, again it follows the same procedure.

The money is appropriated by Congress, it is given to the Corps of Engineers, and it gets down to the action district.

In addition to that, it must be remembered that all projects are cooperative projects. This project requires elements of local cooperation. The local people must want the project, and must be willing to participate, and by "participation" in this particular case, it requires that the local people hold the Government free of damages because of the works; that the local people actually furnish such land easements and rights-of-way which might be required; that the local people pass certain ordinances which are required to insure that the workers are properly used; and that local people are also willing to make such cash contributions as may be required.

So, you see, it is not only the Federal Government which is necessary for a project to proceed, but it is also the willingness and the desire of the people themselves, the

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local people, so it is not appropriate to say that the Federal Government was remiss in not getting this started, because you remember all of the necessary tools for getting it started do lie right with the people themselves.

MR. KLASHMAN: Thank you very much, Mr. Panuzio.

MR. STEIN: Do you have any further questions, Mr. Klashman?

MR. KLASHMAN: No.

MR. STEIN: Mr. Metzler?

MR. METZLER: No.

MR. STEIN: Thank you very much, Mr. Panuzio.

Mr. Klashman?

MR. KLASHMAN: I should like to call on my old colleague, Mr. Ralph VanDerwerker, who is Program Director, Environmental Engineering and Food Protection, United States Public Health Service, Department of Health, Education, and Welfare, New York.

Mr. VanDerwerker.

STATEMENT OF RALPH J. VANDERWERKER, PROGRAM
DIRECTOR, ENVIRONMENTAL ENGINEERING AND
FOOD PROTECTION, UNITED STATES PUBLIC HEALTH
SERVICE, DEPARTMENT OF HEALTH, EDUCATION, AND
WELFARE, NEW YORK

R. J. VanDerwerker

MR. VANDERWERKER: Mr. Klashman and members of the panel, ladies and gentlemen:

This isn't a formal statement of the Public Health Service, but I have been asked to give some background picture of the Public Health Service interest in shellfish sanitation.

I represent in the New York Regional Office the Division of Environmental Engineering and Food Protection of the Public Health Service, in which the National Shellfish Sanitation Program resides.

As a result of typhoid fever and other outbreaks in 1925, representatives of the shellfish industry and the shellfish-producing States met with the Public Health Service in a conference to determine what could be done about formulating a program that would protect consumers from contaminated shellfish, and reestablish confidence in this product as a food among the shellfish consumers.

As a result of this conference, a voluntary cooperative program, which is rather unusual in this country, was established and has been in effect since that time.

Under this National Shellfish Sanitation Program, each of the participating groups, the States, the Public Health Service and the shellfish industry, has accepted certain specified responsibilities. I will outline the areas

R. J. VanDerwerker

of responsibilities.

First, the State: Each shellfish-shipping State adopts adequate laws and regulations for sanitary control of the shellfish industry, makes sanitary and bacteriological surveys of growing areas, delineates and patrols restricted areas, inspects shellfish plants, and conducts such additional inspections, laboratory investigations and control measures as may be necessary to insure that the shellfish reaching the consumer have been grown, harvested and processed in a sanitary manner. The State annually issues numbered certificates to shellfish dealers who comply with the agreed-upon sanitary standards, and forwards copies of the interstate certificates to the Public Health Service.

The Public Health Service makes an annual review of each State's control program, including the inspection of a representative number of shellfish-producing plants. On the basis of the information thus obtained, the Public Health Service either endorses or withholds endorsement of the respective State control programs.

For the information of health authorities and others concerned, the Public Health Service publishes a semi-monthly list of all valid interstate shellfish shipper certificates issued by the shellfish control authorities.

In addition, the Public Health Service carries

R. J. VanDerwerker

on a shellfish and sanitation research program and assists the States in investigating problems of unusual nature. The laboratory for this work is situated in Rhode Island.

However, for the purpose of the National Shellfish Sanitation Program, primary emphasis is placed upon the continuing approval of State programs to determine that a satisfactory level of sanitation is in fact maintained.

The industry cooperates by obtaining shellfish from safe sources, by providing plants which meet the agreed-upon sanitary standards, by maintaining sanitary plant conditions, by placing the proper certificate number on each package of shellfish, and by keeping and making available to the control authorities records which show the origin and disposition of all shellfish.

The controlling criteria and standards developed by the Public Health Service and States are reviewed and approved by the National Shellfish Sanitation Workshops, convened periodically by the Public Health Service.

The workshops consist of representatives of industry, State shellfish agencies, and the Public Health Service.

The next workshop is scheduled for July of 1967.

We have a manual that is produced by the Public Health Service. It consists of three parts. One has to do

with the criteria for shellfish growing areas, and how surveys shall be made, and this contains the criteria by which areas are closed or approved or restricted; Part 2, which has to do with the sanitary conditions in shucking and packing plants; and Part 3, which has to do with the procedures for appraisal of State shellfish sanitation programs.

With this background, the statement of the Public Health Service interest in the topic under discussion today has been prepared.

I wish to introduce the Regional Shellfish Consultant, Mr. George Morrison, who will present the formal statement. Mr. Morrison is on my staff in the New York Regional Office.

MR. STEIN: Do you have any questions or comments of Mr. VanDerwerker?

MR. KLASHMAN: No, I do not.

MR. STEIN: Mr. Metzler?

MR. METZLER: I believe not at this time.

MR. STEIN: Thank you, Mr. VanDerwerker.

MR. VANDERWERKER: I will be back if you have any later.

MR. STEIN: You know, when Mr. Klashman introduced you as his old colleague, I took a double-take,

G. Morrison

because I have probably been as old a colleague too. I don't think he meant that "old" the way he said it.

MR. VANDERWERKER: Well, you could mean it that way, but we have been long-time colleagues, all three of you on the panel, and myself.

MR. STEIN: That is right.

I might say, you know, when Dwight was out in Kansas, we really didn't emphasize this shellfish program too much in the pollution problems there.

All right, thank you.

STATEMENT OF GEORGE MORRISON, REGIONAL
SHELLFISH SANITATION CONSULTANT, SHELLFISH
SANITATION BRANCH, DIVISION OF ENVIRONMENTAL
ENGINEERING AND FOOD PROTECTION, UNITED
STATES PUBLIC HEALTH SERVICE, DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

MR. MORRISON: My name is George Morrison. I am Regional Shellfish Sanitation Consultant representing the Shellfish Sanitation Branch, Division of Environmental Engineering and Food Protection, United States Public Health Service. My statement of interest in the conference on the abatement of pollution in Moriches Bay and the eastern

section of Great South Bay, Long Island, New York stems from the responsibility of the Department of Health, Education, and Welfare for the health aspects of water pollution control, and is made within the framework of the National Shellfish Sanitation Program -- a consumer-protection oriented program administered jointly by the States and the United States Public Health Service.

The National Shellfish Sanitation Program is based upon the premise of a continuing safe and beneficial use of shellfish as a natural resource. Great South Bay and Moriches Bay support a valuable shellfish resource which must be protected. Maintenance of acceptable sanitary water quality over these shellfish beds is of paramount importance in the ability of the shellfish to survive and reproduce and to the growth of a safe product for direct marketing as a food.

Data relative to the shellfish production and potential in the waters of the Great South and Moriches Bays have been or undoubtedly will be covered by other statements presented at this conference. My statement of interest will be directed toward the water quality conditions of these bays as their quality interferes with, lessens or destroys the use of shellfish harvested from the area for use as a human food item.

G. Morrison

Oysters, clams and mussels have an unusual potential for the transmission of disease to man. This unusual potential can be attributed to three factors:

(1) The environmental growth tolerance of shellfish is such that they ordinarily grow only in estuaries in which there is an admixture of fresh and salt water. However, the estuarine waters of Moriches Bay and the east section of the Great South Bay are receiving waters for waste discharges from duck farms, municipal and domestic sewerage systems, industrial operations and extensive commercial and recreational water craft traffic.

(2) Shellfish are filter feeders. In the process of feeding, they pump large quantities of water across their gill systems. Particulate material and dissolved substances are removed and concentrated to levels above that of the overlying water. The Norther Quahog, (Hard Clam - Mercenaria mercenaria) the shellfish species in most abundance in the Moriches and Great South Bay, during periods of active feeding, can concentrate bacteria to a level of 2.5 to 6.0 times that of the overlying waters. The concentration factor for metals, radio-nuclides, industrial wastes or pesticides is much

G. Morrison

greater. For example, it has been reported that the eastern oyster has a concentration factor of 17,000 for Zn^{65} . 1/

(3) Shellfish are frequently consumed raw or with little cooking. The entire animal is eaten.

It has been demonstrated many times that these factors can combine to transmit human illness. A positive relationship, therefore, exists between pollution of shellfish-growing areas and infectious disease and poisoning from high metal concentrations. Typhoid fever has been historically linked with polluted shellfish and in recent years there has been evidence of possible transmission of infectious hepatitis by raw shellfish. The possibility also exists for the transmission of other enteric virus infections by contaminated shellfish.

The primary sources of pollution in the bay areas under discussion have been attributed to the waste discharge from the several duck farm operations in the area, duck processing waste, and sewage. The dangers of pollution from sewage waste are well known. However, the dangers of pollution of animal origin have not been, until recently, fully recognized. Recent studies of the relationships of pathogenic to coliform organisms, when the source of such coliforms is of duck origin, indicate a definite

public health menace exists in shellfish waters receiving waste discharged from duck farms.

The major impurities in waste water from the Long Island duck farms, I understand, are manure and waste grain. The pollutional character of this waste is largely due to two constituents of the duck droppings, namely, pathogenic enteric microorganisms and unstable organic material, the same two constituents that cause domestic waste to be so objectionable in estuarine waters. The Salmonella group of pathogenic organisms as an example have been demonstrated to be present in ducks and duck droppings. 2/

The pathogenicity of Salmonella from ducks has been demonstrated by cases of human salmonellosis resulting from the ingestion of duck eggs or food prepared from them. 3, 4 / Studies have conclusively demonstrated the presence of pathogens in the waste from Long Island duck farms and the possibility of the transmission of these pathogens from the farms through the shellfish waters and actually to the shellfish. 5/ Shellfish-growing areas polluted by waste discharge from duck farms and duck processing plants as well as sanitary sewage should, therefore, be closed to the harvesting of shellfish for marketing purposes, if the sanitary quality of the water is inferior to the approved area standards of the National Shellfish Sanitation Program

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Manual of Operations, Part I, Sanitation of Shellfish
Growing Areas. 6/

For a shellfish-growing area to be approved for the harvesting of shellfish, the classification must be supported by a comprehensive sanitary survey which presents evidence that pathogenic microorganisms, radionuclides and/or harmful industrial wastes do not reach the area in dangerous concentrations. As a measure of the relative safety of an area, the median coliform MPN of the water must not exceed 70 per 100 ml, and a percentage of the samples taken must not exceed an established count depending on the dilution techniques used. The water sampling must obviously be made of the waters in the area most probably exposed to contamination during the most unfavorable hydrographic and pollution conditions.

Considerable information on the extent and influence of pollution, and the sources of pollution to the bay areas, has been or will be presented for the record of this conference by the conferees. Suitable reduction in the strength and volume of this waste discharge will afford greater protection to the shellfish resources in the area in providing a safer product for human consumption and could result in the possible reopening of presently closed areas. Such reduction of this pollution is obviously in

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the interest of public health and will be supported by the United States Public Health Service.

Thank you.

MR. STEIN: Thank you.

You wanted your references included too?

MR. MORRISON: Yes.

MR. STEIN: Without objection, this will be done.

(The references referred to are as follows:

REFERENCES

1. Effects of Atomic Radiation on Oceanography and Fisheries, Publication No. 551, National Academy of Sciences, National Research Council, 1957.

2. Edwards, P. R., Bruner, D. W., and Moran, A. B. "Salmonella Infections of Fowls." Cornell Vet: 38:247, 1948.

3. Mallam, P. C. and Alhadeff, R. "Salmonella Infections in Man Conveyed by Ducks' Eggs." Lancet 250:887 (June 15) 1946.

4. Snapper, I. "Salmonellosis Caused by Ingestion of Ducks' Eggs." American J. Digest Dis 11:8-10, 1944.

5. Bidwell, M. H., and Kelley, C. B., "Ducks and Shellfish Sanitation." Amer. Jour. Pub. Health, 40,

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923, (1950).

6. National Shellfish Sanitation Program Manual of Operations, Part I Sanitation of Shellfish Growing Area, 1965 Revision, U. S. Dept. of HEW, Public Health Service, Washington, D. C.)

* * *

MR. STEIN: Are there any questions or comments on this statement?

MR. METZLER: No.

MR. KLASHMAN: No.

MR. STEIN: If not, thank you very much.

Mr. Klashman?

MR. KLASHMAN: Are there any other Federal agencies represented here who wish to make a statement?

(No response.)

MR. KLASHMAN: If not, Mr. Stein, I would like to enter in the record a resolution which we have received from the Fire Island National Seashore Advisory Commission.

MR. STEIN: Would you read it?

MR. KLASHMAN: Yes.

This letter is from George Biderman, Chairman, Fire Island National Seashore Advisory Commission, located

at 30 East 42nd Street, New York City, New York.

"In connection with your current hearings on Great South Bay water pollution problems, I would like to enter in the record the following resolution which was passed unanimously by the Fire Island National Seashore Advisory Commission at its meeting of February 23, 1966:

"Resolved that the Fire Island National Seashore Advisory Commission urge the establishment of an appropriate inter-governmental partnership from local, state and federal agencies for research planning and policy formulation for the preservation of the natural values of the Great South Bay. Furthermore, be it resolved that this effort should be directed toward the establishment of a more formal intergovernmental agreement among local, state and federal authorities concerning the management and administration of this valuable natural resource."

"As you know, a large proportion of the southerly boundary of Great South Bay is within the boundaries of the Fire Island National Seashore and pollution of this area is, therefore, a matter of concern to the Commission."

Thank you, Mr. Stein.

MR. STEIN: Thank you.

By the way, there is nothing in the record on this except this first resolution here, but if there is any more information on an intergovernmental agreement, of course we will be glad to hear it and consider it.

Mr. Klashman, do you have any other statements?

MR. KLASHMAN: Mr. Stein, that completes the presentation by the Federal agencies.

MR. STEIN: At this point, we would like to proceed with the presentation of the statements from New York State.

Now, under the Federal law, as we have pointed out, the conferees are the Federal Government and New York State. New York State manages its own time and its own participants.

We will call on Mr. Metzler, who will be in charge of this. Anyone who wishes to speak from New York State should be in touch with Mr. Metzler. He will arrange for their presentation.

Mr. Metzler?

MR. METZLER: Thank you, Mr. Stein.

By way of arrangement, so that you may be budgeting your time, because I am aware of the great

responsibility we have to make the best use of the time of each one of you, may I suggest how we would propose to proceed from this point with the New York witnesses?

We have three State witnesses, and I would propose that they speak first. There are two additional county officials, who will speak next, and then there are ten others, who represent various groups, or wanted to speak as individuals, who have given me their names.

I would hope, on the basis of the information I have at hand at the moment, that if we were willing to work until five o'clock or a little later, we might be able to hear all of those people who have indicated up until now a desire to be heard.

Is that agreeable to you, Mr. Chairman?

MR. STEIN: Yes. As I pointed out, in view of the fact that Senator Kennedy has indicated that he will be here tomorrow, we will be in session tomorrow as of present indications, and you can arrange your schedule accordingly.

MR. METZLER: We have a very close cooperative working relationship in New York State in the development of policy relating to water resources. This, by all odds, is the most progressive thing that has happened at the State level along the Eastern Seaboard, I am sure.

We have the Water Resources Commission, that is

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a policy-forming agency, and here to speak for the Water Resources Commission today is Mr. Montanari, Assistant Commissioner for Water.

STATEMENT OF F. W. MONTANARI, ASSISTANT
COMMISSIONER, NEW YORK STATE CONSERVATION
DEPARTMENT, DIVISION OF WATER RESOURCES

MR. MONTANARI: It seems that we have lost the Chairman for a moment. I guess that is all right. Actually, you have the statement before you and I will go through it quickly.

I am F. W. Montanari, Assistant Commissioner, New York State Conservation Department, Division of Water Resources.

In addition to Pure Waters, which is the keystone of the New York State Water Resources Program, it is important that the conferees know about the many related programs in order to be in a position to develop such effective conclusions as may result from this conference.

After all, with this much talent and energy, I am sure we want to get the job done right.

In Cleveland, at the Lake Erie conference last year, the Chairman, Mr. Stein, made a basic point which I

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heard from him for the first time there. It is a most important one. He pointed out the need for the regional approach to pollution control, and the need for comprehensive planning so that the job might be properly accomplished.

As you have just heard, in New York State there is a single agency, the Water Resources Commission, responsible not only for policy in all matters affecting the State's water resources, but also for multi-purpose planning and coordination of State agency activities in the water resources field. The attached compendium, and I think you all have this and we will enter this as part of the record, because it will serve as a useful reference, is entitled "The Coordinated Program for the Water Resources of New York State." It describes the legal and administrative structure, including interstate compacts, and the many current planning programs. Considerable emphasis is given to the subject of water pollution control.

(The document referred to will be contained in the files of the Department as an exhibit.)

State legislation enacted in 1959 provides for local planning. Local entities, such as counties, may apply for State assistance in comprehensive, multi-purpose water resources planning. When a petition for aid is approved, the

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State pays seventy-five percent of the cost of the study and provides necessary staff facilities. A seven-man board, composed of local leaders residing within the area under consideration, is appointed by the Water Resources Commission, and it is the board itself which has the responsibility for evolving the plans. At the present time, we have three such boards in operation in other parts of the State, and seven in various steps of formation. Interest in this board approach has been evidenced here on Long Island in conjunction with other planning activities, and I think you have heard of the bi-county planning effort, the Office for Planning Coordination, which are just a couple of examples of on-going locally-oriented planning efforts.

Long Island, as I am sure you know, is a very dynamic and special place. Much has been done locally, and there are great opportunities, desires and capacity for local participation in any of the affairs which affect the Island, and I think this is a particular characteristic of the Island. I don't think I had seen it quite to the extent that I have witnessed here on Long Island, the intense participation and interest in local affairs, and a real do-it-yourself spirit. It is exactly this type of environment which is best suited for regional board activity under local leadership.

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The regional board mechanism is designed to provide for the integration and coordination of all efforts at the local level -- including, importantly, the Federal efforts. Last year, for example, Section 214 of the Rivers and Harbors Act of 1965 provided the authority to the Corps of Engineers to undertake water resources planning in cooperation with the State of New York. In a statement on behalf of the State of New York, the request for the sum of \$500,000 was made, with the request that \$300,000 be dedicated to the start of a hydraulic model for the Great South Bay by the U. S. Corps of Engineers.

Mr. Panuzio mentioned another effort to achieve this model, which some of us think is quite basic.

Testimony you have heard and will hear will indicate the need for such scientific approach to solving the problems of this great marine resource, and that is exactly what you are dealing with.

For years, a matching fund program with the U. S. Geological Survey has been carried out here on Long Island as part of statewide activities. The dimension of this matching fund program is now nearly a million dollars, with one-half, of course, being supplied by New York. The State, through the Water Resources Commission and its

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member agencies, is involved on a continuing basis with activities of many other Federal agencies, including, but not limited to, the Fish and Wildlife Service, the Corps of Engineers, the Public Health Service, the Soil Conservation Service, and now the new Federal Water Pollution Control Administration.

Under Federal impetus, there has been a proliferation of water-related programs, which, taken together, may tend to confuse the people. The most significant Federal planning programs affecting Long Island directly in the water resources field include the following:

(1) Hudson-Mohawk-Champlain Intercoastal Metropolitan Study. The Federal Water Pollution Control Agency has been authorized to conduct a comprehensive water pollution control study which was initially estimated to take seven years and cost \$12 million to complete. Water quality goals can only be established with full consideration and evaluation of all other aspects of comprehensive water resources planning and development and with the full participation of State agencies.

This, of course, is going on as a part of the program of our New York State Water Resources Commission.

(2) North Atlantic Regional Water Resources Study. This \$4 million study embracing 13 States, the

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District of Columbia, and five Federal agencies, with the North Atlantic Division, Corps of Engineers, serving as chairman of the coordinating committee, was initiated in January 1966. New York State is a member of this committee. A plan of study has been evolved calling for completion of the study by 1970. This is a framework type study which will produce broad-brush results.

(3) North East United States Water Supply Study.

The previous study was NAR, and this is NEWS. This study was authorized in October 1965 under Public Law 89-298 and covers the same 13 States and the District of Columbia cited for the North Atlantic Regional Water Resources Study. However, in this water supply study all of New York State is involved except the Erie-Niagara and Allegheny River Basins. It is understood that funds will be forthcoming to initiate the study in the appropriation bill for Fiscal Year 1967. In this study, the Chief of the Corps of Engineers is authorized to cooperate with Federal, State and local agencies in preparing a plan in accordance with the Water Resources Planning Act (PL 89-80) to meet the long-range water needs of the Northeastern United States. These Federal programs, among others, must necessarily be fully integrated and coordinated with the many studies being performed by State and local agencies. This is

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particularly true in Long Island. The ideal mechanism for achieving this is, as previously indicated, the Water Resources Commission at the State level and the regional water resources planning and development board established under the provisions of Part V, Article V of the New York State Conservation Law at the local level.

We would submit that not only is the State willing, but is able, through its legal and administrative structure and through personnel which have been recently acquired, to implement "Pure Waters" and other complementary programs affecting the water resources of the people of Long Island as an important part of the Empire State.

We feel that we have a complete water resources program, and, as I indicated in the beginning, the Pure Waters is indeed the keystone of this.

Unless we have waters we can manage, we have really nothing to work with.

We look to the Federal establishment for its vital contribution to the partnership that our Federalist system of government is today.

Thank you.

Before I step down, Mr. Stein, you weren't here at the beginning.

Mr. Stein told us that he has been paying a

dollar and a dollar and a half for a half a dozen clams. Down here at the Lamplighter, I had some delicious clams. There were a half a dozen of them and I brought the menu back in case he would like to have it for part of the record. The price of the clams here is 60 cents for a half a dozen.

Now, Murray, maybe if you take this back to Washington, you can get a reduction on the clams you have been eating.

MR. STEIN: I doubt it. I really did say a dollar or a dollar and a quarter. They have not charged us \$1.50 yet.

By the way, Monty, as long as we are on that, on these local boards, what would you call the board if you had a local board like that on the south shore of Long Island?

MR. MONTANARI: On the south shore of Long Island?

MR. STEIN: Yes.

MR. MONTANARI: I think Mr. Dennison indicated that Long Island must be handled pretty much as a unit. There have been many activities that have tended along that line.

Unless I am very badly mistaken, it seems that Nassau and Suffolk -- now, in Suffolk, this is a bad thing

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to say, I realize -- but Nassau and Suffolk are a logical unit that ought to be planning, working and managing their resources together. They do have a bi-county --

MR. STEIN: In other words, this would be the whole island -- north and south shore?

MR. MONTANARI: Yes.

MR. STEIN: All right.

MR. MONTANARI: I don't think that you can separate the water because of the groundwater, which is so important to everybody.

MR. STEIN: Yes. You know, I had a horrible vision, Monty, that you were going to have this just on the south shore -- you might call it the surf board.

(Laughter.)

MR. MONTANARI: Some day I am going to get even. I am not going to be one up on him, but I am going to get even.

MR. STEIN: Are there any comments or questions?

MR. METZLER: No.

MR. STEIN: Mr. Klashman?

MR. KLASHMAN: No. I have no comments.

MR. STEIN: By the way, this is a very excellent statement, and, as far as I know, at least speaking for

myself, we are in complete agreement with it.

I think we have come a long way in this State-Federal-local cooperative arrangement. I think it has taken a long time, and this is its natural evolution, for us to work out a cooperative program.

I do think despite what you may say are essential political differences, that the Federal and State programs, at least in New York State, are working together very closely, as evidenced by the statements here.

However, you must recognize too that there is a big element here. I do not think that the Federal Government or the State government can do this alone unless we have local cooperation. This is a three-way operation -- Federal, State and local -- and I hope I am speaking for all of us when I say we are ready to meet you at least half-way -- more than half way; but this job is not going to be done, no matter how good we may think we are, Monty and Dwight, just by the State and the Federal Government, unless we have the local people with us.

If you want clean water here and work with us and use the resources, I think we are in a position now where we are really working closely on the Federal and State level and can offer you that aid. I think your paper evidences that, Monty.

Thank you very much.

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MR. MONTANARI: I think that you would agree with me, Murray, and I have heard your boss, Secretary Udall, use these words, that creative Federalism is still a viable form of government today, and it is up to us to make it work.

MR. STEIN: Mr. Metzler:

MR. METZLER: Thank you, Murray.

The next witness from New York State will be Mr. Robert Hennigan, in charge of the Water Pollution Control Program for the State of New York Pure Waters Program.

STATEMENT OF ROBERT D. HENNIGAN, DIRECTOR
OF WATER RESOURCE SERVICES, STATE OF NEW
YORK DEPARTMENT OF HEALTH

MR. HENNIGAN: Mr. Chairman, conferees and ladies and gentlemen:

We have prepared here a 63-page report which I don't intend to read. What I will do is brief most of it and present some remarks, which I hope won't take any longer

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than five or six minutes.

I would request the Chairman to include the entire report in the minutes of the conference as if read in its entirety.

MR. STEIN: Without objection, that will be done.

(The report referred to is as follows:)

REPORT ON WATER QUALITY
MORICHES BAY AND THE
EASTERN SECTION OF GREAT SOUTH BAY
LONG ISLAND, NEW YORK

Division of Pure Waters
New York State Department of Health
Albany, New York
September 1966

INTRODUCTORY REMARKS

The following report was prepared for presentation at the Federal Enforcement Conference on Pollution of the Waters of Moriches Bay and the Eastern Section of Great South Bay, scheduled to be conducted on September 20, 21

and 22, 1966, at Patchogue, New York.

The Department of Interior report, POLLUTION OF THE NAVIGABLE WATERS OF MORICHES BAY AND EASTERN SECTION OF GREAT SOUTH BAY - September, 1966, describes generally the factors affecting water quality in the study area, which is the subject of the Conference. The purpose of this report is to augment the information in the Federal Water Pollution Control Administration report and to be responsive to the issues raised. This report is only a portion of New York State's presentation. Information and data directly relating to shellfish sanitation, supervision and control will be presented separately by the State Department of Conservation.

The reports represent Federal-State-local cooperative efforts since the information in them is drawn from reports prepared by and activities carried out by agencies at all levels of government; this reemphasizes the inter-governmental nature of this problem and the need for an effective Federal-State-local partnership to assure its eventual solution.

The report contains (a) recommendations, (b) summary of action, (c) hydrography, (d) classification and standards system, (e) order issued on duck farms, and (f) tabulations of (1) municipal and industrial waste discharges of present conditions, (2) analyses of effluents from duck

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farms, and (3) water quality of receiving streams as shown by samples collected in August, 1966.

The study area is a small part of the total Long Island picture concerning water quality management and the water resource problems. This was alluded to by Doctor Ingraham in his remarks. All of us recognize this. The conference called on the study area concerns itself fundamentally with the protection of shellfish through the elimination of pollution and other needed action, and focuses on the duck farm industry. The report deals with this area and these concerns.

There are three major elements in this problem: (1) elimination of pollution at its source by effective treatment at the duck farms and the other sources of pollution in the area; (2) dredging to remove existing sludge banks and deposits where they adversely affect water quality and water use; and (3) maintenance of the inlets to Moriches Bay and Great South Bay to insure desirable tidal action and flushing. There are other concerns in evaluating the total water quality and water resources management picture on the south shore of Long Island.

All of the duck farms have recently been put under a new order and timetable which calls for secondary treatment with 85 percent removal of suspended solids and

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biological oxygen demand and the effective disinfection and removal of phosphates. Recent research studies indicate that this can be accomplished. The Patchogue Sewer District will either be included in the proposed county sewer district or will proceed unilaterally to provide secondary treatment. The schedule has been worked out with the poultry processing plant and the order will be issued in the near future adhering to the schedule followed with the duck farms. Removal of existing sludge banks and steps to insure the needed tidal action in both bays needs to be definitely spelled out in a future program of action.

Suffolk County has done much on its own to seek solutions to existing problems. The county has financed and conducted an independent research study on duck waste treatment methods, has expended county funds to maintain inlets and waterways and has most recently pledged up to \$450,000 in support of a comprehensive intermunicipal public water supply study which will give adequate attention to water quality problems.

The material presented in this report is intended to facilitate the deliberations of the conferees by (1) making recommendations for action and (2) providing up-to-date information on water quality, pollutional sources, comprehensive planning and enforcement.

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New York State Recommendations
to the Federal Government

1. A concerted effort should be made to stabilize Moriches Inlet and to dredge estuaries to improve conditions of tidal flushing. This is essential to obtain optimum use of the tidal areas for recreational and commercial activities such as boating, fishing, swimming and for the harvesting of shellfish.
2. Provide incentives for industry to construct waste treatment facilities.
3. Increase construction grants. Residents of Suffolk County face tremendous costs in providing both collection and treatment facilities to serve the five western towns of the county.
4. Research on algal nutrients and economic methods to remove these nutrients from both municipal and industrial wastes must be accelerated and conclusions reached.

HYDROGRAPHY OF THE AREA

The following information is presented in

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summary form limited to pertinent details to facilitate understanding and discussion of the problems by those appearing before the conferees.

The study area under investigation on the south shore of Long Island, New York, includes:

1. Moriches Bay, west of the Quantuck Canal;
2. The eastern end of Great South Bay, east of a line connecting Blue Point and Water Island.

(Note: Hydrologically, the eastern portion of Great South Bay cannot be isolated by drawing this north-south line. The bay functions as a unit body of water being influenced by tides, temperatures, rainfall, etc., as a whole.)

3. Patchogue Bay, Bellport Bay, and Narrow Bay, the waterway which connects Great South Bay and Moriches Bay.
4. The coves, rivers, streams, and estuaries tributary to the bays.

Moriches Bay and Great South Bay are protected on the south from the Atlantic Ocean by a narrow sand bar. The bar in some places is but a few hundred yards wide.

These bays are very shallow. Depths vary from one to eleven (11) feet. The average depth is about four (4) feet.

MORICHES BAY

Length - 9 miles;

Width - 2 to 4 miles;

Area - 10,770 acres (approximate);

Depth - 4 ft. (mean low water)

Location - Towns of Brookhaven and Southamton,
County of Suffolk, New York

Tide - Mean tidal range - 0.6 ft. (approximate)
Low tidal range - 0.2 ft. (when Moriches
Inlet is severely restricted)

Division of Bay

Moriches Bay is effectively divided at
Tuthill Point. Shoals form around the
inlet and narrow the Bay at this point.

Fresh Water Supply

Numerous tributaries and ground water
drain into Moriches Bay.

Watershed area - 80 sq. miles;

Mean average rainfall - 43.93 inches;

<u>Fresh Water Inflow</u>	<u>Million ft. 3/day</u>	
Rainfall on watershed	24.6	22.31
Evaporation from watershed	3.57	3.24
Ground water seepage	16.5	15.0
River flow	<u>4.53</u>	<u>4.17</u>
Total inflow to Bay	21.03	19.07

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(Based on 48.5 inches of rainfall during sampling period.)

Source: "The Hydrography of Great South Bay and Moriches Bay."

A. G. Redfield

Woods Hole Oceanographic Institution

Reference No. 52-26 April 1952. Unpublished.

Tidal Effects

Inlet open: Mean tidal volume flow - about $660 \times (10)^6$ cubic feet with a net outflow of about $10 \times (10)^6$ cubic feet per tidal cycle.

Inlet closed: Mean tidal volume flow = about $220 \times (10)^6$ cubic feet per tidal cycle with net outflow of about $10 \times (10)^6$ cubic feet.

The outflow is about $10 \times (10)^6$ cubic feet greater per tide at all times to account for about $20 \times (10)^6$ cubic feet per day of runoff and seepage entering Moriches Bay.

Outflow depends on widely varying annual precipitation.

Source: Moriches Bay

Shellfish Growing Area VIII

Survey Report - 1966

State of New York

Conservation Report

Bureau of Marine Fisheries

Moriches Inlet

Tidal flow is influenced at each point of exchange

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by the condition of Moriches Inlet.

Inlet closed - about 85% of total flow is through Narrow Bay and 15% through Quantuck Canal. Total volume flow = $226 \times (10)^6$ cubic feet per tide.

Inlet partially closed - about 19% of total flow was through Narrow Bay, 15% through Quantuck Canal, and 66% through Moriches Inlet. Total volume flow = $348 \times (10)^6$ cubic feet per tide

Source: U. S. Army Engineers July 13, 1949.

Water Movement

The net movement of water is westward through Narrow Bay when Moriches Inlet is open.

The tide from Moriches Inlet reaches Smith Point approximately 40 minutes ahead of the tide from Fire Island Inlet. This introduces large volumes of Moriches water into Bellport Bay.

(Source: See A. G. Redfield, Above)

Inflow from Quantuck Canal

Total flow through the Canal is low compared to that through the Inlet and Narrow Bay. This is about 15% of the total, when inlet is closed; and about 10% when inlet is open.

Total flow through the Canal with inlet closed is about 60% of flow with inlet open.

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(31,000,000 vs 54,000,000 cu. ft./day)

(Source: See A. G. Redfield, above)

Tidal Action in Moriches Bay

1. With inlet open, tidal action from Tuthill Point east is directly influenced by the inlet.
2. At extreme eastern end of Moriches Bay tidal action is affected by passage of water through Quantuck Canal.
3. The bay west of Tuthill Point experiences tidal action through Narrow Bay with net westward movement.

Tidal exchange with the inlet in this section increases from Forge River eastward.

4. Salinity data indicates that this does occur.

(Note: Samples could not be collected at all stations on the same dates.)

Source: Moriches Bay

Shellfish Growing Area VIII

Survey Report - 1966

State of New York

Conservation Department

Tidal stages were calculated from U. S. Coast and Geodetic Survey tide tables.

5. Average volume of water transported through Moriches Inlet increased 20% (from 115 to 140 million cubic feet) from 1950 when inlet was closing to 1954 after the inlet was opened.

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The ratio of exchange between Moriches Inlet and Smith Point increased from 2:1 to 3:1; and the flow past Smith Point decreased when the Inlet was opened.

The data is for one day.

Source: Data from--

Hydrography of Great South Bay and Moriches Bay;
Vaccaro, R. F.; Bumpus, D. F.; Ryther, F. A.;
and Richards, F. A.

Woods Hole Oceanographic Institution

Reference No. 54-85. July 1954. Unpublished.

6. Extreme variation from short-term measurements is shown by A. G. Redfield's data (reference above):

Narrow Bay at Smith Point

Million Cubic Feet Per Tide

	<u>Inlet Open</u>		<u>Inlet Closed</u>	
	<u>1949^a</u>	<u>1950^b</u>	<u>1951^c</u>	<u>1951^d</u>
Eastward	11	76.3	93.0	81.8
Westward	55	56.6	100.6	101.6

a - U. S. Army Engineers

1 Tidal Cycle

b - Woods Hole Oceanographic
Institution

8 Tides eastward
4 Tides westward

c - Woods Hole Oceanographic
Institution

4 Tides Cycle

d - Suffolk County Highway Dept.

215 Tidal cycles eastward
208 Tidal cycles westward

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7. Conclusion

The hydrography of Moriches Bay is dependent on the status of Moriches Inlet.

The status of Moriches Inlet dictates total volume flow per tide and circulatory patterns in the bay.

The bay is shallow within a small tidal range, and is often influenced by winds.

The bay experiences extreme low or high water depending on intensity, duration and direction of winds.

Tides may fail to reverse at Smith Point because of wind action, and the averages apply only during calm weather (According to A. G. Redfield, see above).

Circulatory patterns in the bay will be influenced by dredging operations.

Source: Moriches Bay

Shellfish Growing Area VIII

Survey Report - 1966

State of New York

Conservation Department

GREAT SOUTH BAY

Total length - 24 miles;

Width (Average) - 3 miles;

Area - 95 sq. miles

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That portion of Great South Bay under this investigation:

Length - 8 miles

Width - 2 to 4 miles.

Fresh Water Supply

Natural seaward discharge from the Long Island groundwater.

Some surface streamflow.

Relatively, the volumes of fresh water entering Great South Bay are low.

Salt Water Supply

Sea water enters Great South Bay through Fire Island and Moriches Inlets. Sufficient sea water enters to maintain distribution of salt in the bays.

Water Movement

Volumes of 'new' sea water, available for mixing in each tidal cycle appear to be very small except at the inlets.

Circulation in the bays appears to be caused by the progressive effect of tides. This develops substantial hydraulic currents in the narrow connecting channels because of shallow depths and different lengths of the bays.

When the Fire Island and Moriches Inlets are both open, water movement is easterly from Great South Bay into Moriches Bay.

When Moriches Inlet is closed by silting, water movement is westerly.

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About 20 million cubic feet appears to move from Great South Bay and Bellport Bay into Moriches Bay during one tidal cycle with both inlets open. (July 1950 measurements).

Tidal Circulation and Wind

Wind induced currents can nullify or even reverse tidal flow.

For example, the equivalent of about two-thirds of volume of Moriches Bay was moved westward into Bellport Bay in November 1951. This resulted from a persistent four-day wind which increased the flow between the two bays. Moriches Inlet was closed at the time so that normal flow was westward.

Prevailing winds during summer are light westerly. These generally induce patterns which increase normal circulation of bay water. Water from Great South Bay is shifted to Bellport Bay. This raised the hydraulic gradient on Smith Point and moves water into Moriches Bay.

These conditions also move Moriches Bay water east through Potunk Point Narrows into Shinnecock Bay.

Water Currents

	<u>Maximum</u>	<u>Flow per Tidal Area</u>
Fire Island Inlet	8 fps	2.0 billion cu. ft.
Moriches Inlet	6 fps	0.2 billion cu. ft.

Net Seaward Flow

The net seaward flow through Moriches Inlet has been measured at 18 million cubic feet per tidal cycle.

Tidal Currents

In open bays, the maximum tidal current is about 0.5 foot per second.

The east-west tidal excursion is approximately 1.5 miles.

The net drift, based on a few measurements, may be as high as one mile per day.

Flushing

The western portions of Great South Bay appear to be flushed in four (4) to ten (10) days time.

<u>Tidal Ranges</u>	<u>Mean</u>
Fire Island Inlet	4.1 ft.
Moriches Inlet	2.9 ft.
Bellport	0.8 ft.
Mastic Beach	0.5 ft.

Maximum storm tide (November 1950) was 9.4 feet above mean sea level at Fire Island Inlet.

Tidal Circulation and Stratification

The tides are generally sufficient to prevent stratification in open bays.

Stratification does occur, however, near inlets and rivers.

Temperatures

Water Temperatures - 0° - 30° C

The highest temperatures are found in shallow areas and in upper parts of estuaries during summer.

Salinity

Salinity of water ranges from zero in upper parts of estuaries to 30,000 ppm in open portions of bay.

Circulation in Bays

Circulation in the bays is weak.

This limits the volume of available dilution of water.

This condition is further aggravated by winds and currents which tend to confine waters to the eastern end of Great South Bay.

Bellport Bay

Definition: Most easterly section of Great South Bay,

including all waters between a line drawn due south from Howell Point to Fire Island, and the Smith Point Bridge.

Total Area - 5,480 acres under water

Source: Report of 1964

Bellport Bay Survey

Conservation Department

Division of Fish and Game

State of New York

SUMMARY OF ACTION

1. All duck farms have altered the method of raising ducks by removing pens from open water.
2. Pumping facilities and upland lagoons have been installed. Note: Two farms have stopped use of treatment facilities constructed under Federal grant.
3. Lagoon facilities have been in operation for two years.
4. The duck farm industry has an inspection and surveillance program which includes all farms. Reports on maintenance and operation evaluations by industry are provided to the Suffolk County Health Department.
5. Suffolk County in cooperation with the duck growing industry has sponsored an initial \$18,000 study on treatment methods.
6. The duck industry is conducting a further study on secondary treatment methods. Construction contracts have been let for construction of a 50,000 gpd. secondary treatment facility. Study and construction costs provided by industry will total \$25,000. The New York State Department of Health is providing laboratory services for this project.
7. All duck farmers have stipulated to pollution and are under formal order.

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8. The State of New York is assisting the county with its comprehensive study efforts. A study of the sewage needs of the five western towns is nearing completion. An application for a similar study for the five eastern towns is approved and will soon be under way. A county-wide water supply study is under way. Planning grants to the county currently total \$1,000,605. The county has agreed to augment this amount by \$450,000 in connection with the water supply study.
9. A county sewer agency was formed and has moved rapidly in the past year and a half to provide needed collection and treatment facilities for populated areas. A referendum on District #1 will be conducted early next year.
10. The 1966 State Legislature enacted legislation providing for the control of waste discharges from boats. The legislation provides for approval of holding tanks and treatment facilities as well as onshore treatment works by the State Health Department. Enforcement activity is the general responsibility of the State Conservation Department.

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Typical Duck Farm Construction and
Abatement Steps

The duck farms presently operating in the area under consideration are constructed as follows:

Ducks are housed in buildings with free access to a sand covered duck run. The end of this run is either into a ditch or a concrete trough. All water from this ditch or trough goes to a sump at the low end of the duck runs where it is pumped upto a series of two or more settling lagoons, which provide a form of primary treatment.

Each lagoon is used 30 days or until sludge bulks on the surface. The lagoon is then taken out of service and allowed to dry. Upon drying, the lagoon is dredged and the sludge is used for landfill. Final effluent is then discharged to the receiving waters. Ducks are not raised in natural waters.

The State abatement program in 1951 required that duck raisers first dike all duck pens so that ducks are not raised on natural waters. This has been accomplished in the study area.

The second step of the abatement program called for effective settling of all duck wastes. This was done by

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providing a series of upland lagoons to provide 4-hour settling for the wastes. It is recommended that an adequate number of lagoons be provided to handle a full year's flow.

Step number three of the program called for effective disinfection of all water prior to discharge. This part of the program has not yet been accomplished.

With re-evaluation of the total State Pure Waters Program in 1965, the abatement program for the duck wastes was expanded as indicated in the order on the following page. All duck farms on Long Island have had orders issued by the State.

EXAMPLE OF TYPICAL ORDER

STATE OF NEW YORK : DEPARTMENT OF HEALTH

-----X

IN THE MATTER of the Complaint against:

Poultry Farm,

Respondent,

by Reason of Alleged Violations of Article 12 of
the Public Health Law.

-----X

STATE OF NEW YORK : DEPARTMENT OF HEALTH

-----X

IN THE MATTER of the Hearing to Receive
Evidence Relevant to such Action, if any, as should
be Taken in Regard to Modification or Revocation
of Permits to Discharge Waste Effluents into

issued to:

Poultry Farm,

Respondent,

or the Predecessors or Assignors

-----X

O R D E R

A public hearing in the above entitled proceedings
having been returnable herein pursuant to due written notice

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served in the manner provided by law and the convening of said hearing having been waived by the parties and the New York State Department of Health having appeared generally therein by its Counsel, DONALD A. MacHARG, DERMOT C. REILLY of Counsel, and the Respondents having appeared generally therein by their Attorneys, GREENWALD, KOVNER & GOLDSMITH of New York City, and documentary exhibits having been received on behalf of said Department, and said Counsel for said Department and said Attorneys for Respondent having entered into a written Stipulation that facts exist upon which this Order might be made, served and filed, and said Hearing Officer having approved said Stipulation,

NOW, on reading and filing the notice of hearing and admission of service thereof and stipulation and due deliberation having been had, it is ORDERED:

1. THAT the Stipulation aforesaid be and the same hereby is approved and the facts therein are found and the conclusions therein are arrived at.

2. THAT all Orders of the Water Pollution Control Board of the State of New York directed to or against the Respondents or any of them be and they hereby are modified to provide that the Respondents shall, and each of said Respondents is hereby Ordered and directed, on and after January 2, 1967, to cease and abate, and thereafter keep

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abated, all discharges of duck wastes and duck processing wastes by him or it through or from lands or facilities owned by him or it or under his or its management or control into the waters of the State unless said Respondent shall, either individually or in conjunction with others:

(a) On or before January 1, 1967, submit to the New York State Department of Health, through the Suffolk County Health Department, preliminary plans showing facilities for biological treatment of all such wastes and/or effluents thereof to the extent that at least 85% of the suspended solids and at least 85% of the biochemical oxygen demand and a substantial portion of the phosphates thereof and therein shall be removed and facilities for disinfecting such wastes and/or waste effluents to the extent that the final effluent shall at all times contain a chlorine residual of not less than one half part per million after not less than 15 minutes contact time and an MPN of coliform organisms not greater than 100 per 100 ml. in at least 90% of the samples in a series thereof, provided that at no time may the MPN of such organisms in said final effluent exceed 10,000 per 100 ml.

(b) On or before August 1, 1967, submit final construction plans in approvable form, prepared by or under the direction of a duly licensed professional engineer, for such facilities.

(c) On or before November 1, 1967, initiate construction of such facilities.

(d) On or before April 30, 1968, cause construction of such facilities in accordance with approved plans to be completed.

(e) Thereafter maintain and operate said facilities in such manner that they shall at all times meet the performance criteria set forth in decretal provision 2(a) hereof and that the standards of no waters of the State shall be contravened by reason of the wastes aforesaid or their effluents.

3. THAT any and all permits for the discharge of wastes or waste effluents into the waters of the State issued to the Respondents or to any of them or any of their predecessors or assignors by or on behalf of the New York State Department of Health or the Commissioner of Health of the State of New York or the Water Pollution Control Board be and they hereby are modified, effective May 1, 1968, or upon default of performance of any of the alternative decretal provisions hereof prior thereto, to refer and relate to and permit only the discharge of waste effluents treated in the facilities construction of which is hereby alternatively ordered, and as so modified, are continued.

DATED: Albany, New York

1966

HOLLIS S. INGRAHAM, M.D.

Commissioner of Health of
the State of New York

TO: WATER RESOURCES COMMISSION

GREENWALD, KOVNER & GOLDSMITH

Attorneys for Respondent

* * *

INDUSTRIAL AND MUNICIPAL DISCHARGES

The following table lists all known sources of industrial and municipal pollution within the study area. A brief description of the waste discharged and an estimate of the volume are included.

The table also includes a description of the treatment provided at the present time. At the time of the most recent inspection, two farms were not using their lagoon facilities and two additional farms had abandoned use of a town-owned treatment works.

TABLE 1

INDUSTRIAL AND MUNICIPAL DISCHARGES
Moriches and Great South Bays

<u>Name</u>	<u>Type & Amount</u>	<u>Treatment</u>	<u>Characteristics of Discharges</u>
Gallo bros.	duck farm	upland lagoons	turbid discharge with settleable solids and high coliform content
Leskowicz	duck farm 1.3 mgd	upland lagoons	turbid discharge with settleable solids and high coliform content
Carmen River	duck farm	upland lagoons	turbid discharge with settleable solids and high coliform content
Paul Chonoma	duck farm	upland lagoons	turbid discharge with settleable solids and high coliform content
De Piazzy	duck farm	upland lagoons	turbid discharge with settleable solids and high coliform content
Jurgielewicz	duck farm & processing plant	upland lagoons	turbid discharge with settleable solids and high coliform content and duck slaughtering wastes
Swift Stream	duck farm	upland lagoons	turbid discharge with settleable solids and high coliform content

INDUSTRIAL & MUNICIPAL DISCHARGES (cont.)

<u>Name</u>	<u>Type and Amount</u>	<u>Treatment</u>	<u>Characteristics of Discharges</u>
J. Podlaski	duck farm	upland lagoons	turbid discharge with settleable solids and high coliform content
Vigliotta & Son	duck farm 50 gpm	upland lagoons	turbid discharge with settleable solids and high coliform content
A. Soroka	duck farm	leaching lagoons	---
Adam Kanas	duck farm 250 gpm	upland lagoons	turbid discharge with settleable solids and high coliform content
Breezy Acres	duck farm 250 gpm	upland lagoons	turbid discharge with settleable solids and high coliform content
Zygmunt Babinski	duck farm	upland lagoons and spray irrigation	---
Chester Massey & Son	duck farm 200 gpm	upland lagoons	turbid discharge with settleable solids and high coliform content
Big Seatuck Farm	duck farm 100 gpm	upland lagoons	turbid discharge with settleable solids and high coliform content
Peter Kostuk & Son	duck farm 100 gpm	upland lagoons	turbid discharge with settleable solids and high coliform content

INDUSTRIAL & MUNICIPAL DISCHARGES (cont.)

<u>Name</u>	<u>Type and Amount</u>	<u>Treatment</u>	<u>Characteristics of Discharges</u>
Borak Farm	duck farm	upland lagoons	turbid discharge with settleable solids and high coliform content
Lukert & Son	duck farm 620 gpm	upland lagoons	turbid discharge with settleable solids and high coliform content
Hallock Brookside	duck farm	upland lagoons	turbid discharge with settleable solids and high coliform content
Forge River	duck farm	upland lagoons	turbid discharge with settleable solids and high coliform content
Certified Duck Farm	duck farm	upland lagoons and spray irrigation	---
Smith Bros.	duck farm 70 gpm	upland lagoons	turbid discharge with settleable solids and high coliform content
Stanley Chornoma	duck farm	upland lagoons	turbid discharge with settleable solids and high coliform content
Chi-Dux	duck farm & processing plant 100 gpm	upland lagoons	turbid discharge with settleable solids and high coliform content and duck slaughtering wastes

INDUSTRIAL & MUNICIPAL DISCHARGES (cont.)

<u>Name</u>	<u>Type and Amount</u>	<u>Treatment</u>	<u>Characteristics of Discharges</u>
Battle Bros.	duck farm 50 gpm	upland lagoons	turbid discharge with settleable solids and high coliform content
East River	duck farm 700 gpm	no treatment	turbid discharge with settleable solids and high coliform content; extensive sludge and solids discharged
Spring Water	duck farm 200 gpm	no treatment	turbid discharge with settleable solids and high coliform content; extensive sludge and solids discharged
Ann's Pacholk	duck farm	no treatment	turbid discharge with settleable solids and high coliform count
Stephen Kuczma	duck farm	no treatment	turbid discharge with settleable solids and high coliform content
Oceanic	duck farm	self-contained upland lagoons used only in wet years	---
C & R	duck farm 110 gpm (West Farm)	upland lagoons	turbid discharge with settleable solids and high coliform content
Eastport Duck Processing Plant	duck processing	upland lagoons	turbid discharge with settleable solids and high coliform content and duck slaughtering wastes

INDUSTRIAL & MUNICIPAL DISCHARGES (cont.)

<u>Name</u>	<u>Type and Amount</u>	<u>Treatment</u>	<u>Characteristics of Discharges</u>
Patchogue Village	sewer system; municipal sewers serving 60% of the population	primary treatment	---

DUCK FARM EFFLUENT SAMPLES

The following table lists the results of analyses of grab samples collected in August 1966 from each duck farm in the study area. These samples were collected and analyzed by personnel of the New York State Department of Health in accordance with the procedures set forth in Standard Methods.

The results show that measurable settleable solids and large amounts of coliform are discharged to the receiving waters.

TABLE 2

DUCK FARM EFFLUENT SAMPLES

<u>Name Farm</u>	<u>Date Collected</u>	<u>Temp.</u>	<u>pH</u>	<u>Settleable Solid - 1 hr.</u>	<u>Nitrates</u>	<u>Coliform</u>	<u>Phosphates Total</u>
Gallo Farm ¹	8/12/66	20		1.4		240,000 or greater	
Leszkowicz ²	8/15/66	18	7.0	1.3		240,000 or greater	
Carman River ³	8/15/66	24	7.05	1.5		240,000 or greater	
DiPiazzi	8/17/66	24	7.0	2.0	< 0.1	24,000,000 or greater	67.5
Borak	8/17/66	24	7.2	0.1	0.5	24,000,000 or greater	90.5
Jurgielewicz ⁴	8/17/66	24	6.8	0.35	4.5	24,000,000 or greater	19.0
Chornoma, Paul	8/17/66	24	7.0	0.2	0.1	4,600,000	42.5
Roberts Swiftspring	8/17/66	24	7.2	0.2	0.1	24,000,000 or greater	42.0
Lukert East Farm	8/24/66	26	6.7	1.5	< 0.1	15,000,000	37.5

1 D.O. 0.7

2 D.O. 1.2

3 D.O. 0

4 B.O.D. 300

TABLE 2 (cont.)

<u>Name Farm</u>	<u>Date Collected</u>	<u>Temp.</u>	<u>pH</u>	<u>Settleable Solid - 1 hr.</u>	<u>Nitrates</u>	<u>Coliform</u>	<u>Phosphates Total</u>
Lukert West Farm	8/24/66	26	6.9	2.2	< 0.1	9,300,000	40.5
Smith Brothers ⁵	8/24/66	26	6.6	0.8	< 0.1	46,000,000	82
Vigilotta Bros. ⁶	8/24/66	26	6.3		9.3	46,000,000	96.0
Chi-Dux	8/24/66	26	6.6	0.2	< 0.1	9,300,000	57.5
Adam Kanas & Son	8/24/66	26	7.2	0.2	< 0.1	15,000,000	78
Breezy Acres	8/24/66	26	6.8	1.5	< 0.1	110,000,000	54
C & R East Farm	8/25/66		6.5	0.1		9,300,000	13.5
C & R West Farm	8/25/66		6.6	0.05	0.8	2,300,000	11.5
Baker #1	8/25/66		6.7	2.0	< 0.1	46,000,000	34
Baker #2	8/25/66		6.7	2.0	< 0.1	4,300,000	19
Springwater ⁷	8/25/66		6.8	5.5	< 0.1	15,000,000	32.5
Tuttle Bros.	8/25/66		6.8	0.6	< 0.1	24,000,000	33.5
Massey West	8/25/66		6.7	0.9	< 0.1	15,000,000	40
Massey East	8/25/66		6.8	7.0	< 0.1	9,300,000	31.5

⁵ B.O.D. 162

⁶ B.O.D. 261

⁷ B.O.D. 138

TABLE 2 (cont.)

<u>Name Farm</u>	<u>Date Collected</u>	<u>Temp.</u>	<u>pH</u>	<u>Settleable Solid - 1 hr.</u>	<u>Nitrates</u>	<u>Coliform</u>	<u>Phosphates Total</u>
Big Seatuck	8/25/66		6.5	0.9	< 0.1	24,000,000	22.5
Kostuck and Sons	8/25/66		6.8	0.1	< 0.1	9,300,000	76.5
Duck Processing Plt.	8/25/66		6.7	0.2	< 0.1	4,300,000	8.5

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STREAM SAMPLES - TRIBUTARIES TO MORICHES AND
GREAT SOUTH BAYS

The following table lists the results of a review of stream surveys conducted in August and September in the study area.

The results of the surveys show that sludge banks are present below all discharges and that dissolved oxygen depletion is a common occurrence in many areas. The presence of sludge and dissolved oxygen less than 3 parts per million for class "D" waters is a violation of Article 12, Public Health Law, of New York State.

TABLE 3

Stream Samples, Tributaries to Moriches Bay and Great South Bay
Long Island, New York
August 1966
Table

Stream Index Number	Mileage Index	Date	Time	Depth	Bottom Condition	Temp. C°	DO
162-A	0.3	8/23	1:00	2 ft.	Sludge	27°	11.4
167-A	0.3	8/23	8:05 pm	2 ft.	-----	26°	3.2
162-A	0.7	8/23	1:10	$\frac{1}{2}$ ft.	Clear & Clean	16°	13.6
162-C	0.3	8/23	12:45	2 ft.	-----	26°	4.0
162-C	0.3	8/23	8:00 pm	2 ft.	-----	26°	5.4
163	0.3	8/23	12:30	2 ft.	Sludge	26°	0.8
163	0.3	8/23	7:45 pm	2 ft.	Sludge	27°	0.6 *
163	1.0	8/23	1:30	$\frac{1}{2}$ ft.	Clear	21°	8.4
163	0.0	8/22	10:45 am	4 ft.	Clear	24°	3.0
166	0.0	8/22	11:20	1 ft.	-----	25°	9.0
166	0.0	8/22	11:22	1 ft.	-----	25°	10.0
166	0.2	8/22	11:45	$\frac{1}{2}$ ft.	Heavy black sludge 2 ft. deep	24°	6.4
166	0.1	8/22	12:15	1 ft.	Sludge	25°	7.4

* Remarks: Heavy Rain 1 hr. prior to sampling

TABLE 3 (cont.)

Table

Stream Index Number	Mileage Index	Date	Time	Depth	Bottom Condition	Temp. Co	DO
167	0.0	8/22	11:15	3 ft.	-----	24°	9.2
167	0.75	8/30	3:30	$\frac{1}{2}$ ft.	2 ft. heavy black sludge	28°	0.0
167	0.75	8/30	3:40	$\frac{1}{2}$ ft.	2 ft. heavy black sludge	28°	7.2
167	0.4	8/30	4:10	3 ft.	-----	28°	15.8
167-1	0.1	8/22	12:45	$\frac{1}{2}$ ft.	1 to 2 ft. gray sludge	25°	9.8
167-1	0.2	8/22	1:00	$\frac{1}{2}$ ft.	sludge	25°	11.8
169-A	0.4	8/26	2:00	$\frac{1}{2}$ ft.	Extensive sludge banks	26°	12.8
169-2	0.1	8/31	6:30 pm	$\frac{1}{2}$ ft.	Sludge	29°	3.2
169-2	0.1	8/31	6:35 pm	$\frac{1}{2}$ ft.	Sludge	29°	10.8
169-2	0.0	8/31	6:25 pm	3 ft.	-----	29°	10.2
170	0.2	8/25	2:15	$\frac{1}{2}$ ft.	More than 2 ft. of sludge	28°	9.6
170	0.2	8/25	2:39	$\frac{1}{2}$ ft.	More than 2 ft. of sludge	28°	---

TABLE 3 (cont.)

Table

Stream Index Number	Mileage Index	Date	Time	Depth	Bottom Condition	Temp. C°	D.O.
174-P851-2	0.1	8/31	5:30 pm	$\frac{1}{2}$ ft.	2 ft. heavy sludge	28°	0.0
174-P851-2	0.0	8/31	5:25	1 ft.	Heavy sludge	28°	0.0 *
174-P851	---	8/31	5:40	1 ft.	Sludge	30°	25.0 **
174-2	0.3	8/24	12:30	2 ft.	Clear	26°	1.0
174-2	0.4	8/24	1:05	1 ft.	Sludge	24°	0.0
174-2	0.5	8/24	12:40	$\frac{1}{2}$ ft.	6 inches heavy sludge	24°	3.2
174	0.6	8/24	1:30	3 ft.	-----	27°	7.0
174-4	0.0	8/24	1:35	1.5 ft.	2 ft. of sludge	29°	---
174-4	0.1	8/24	1:40	$\frac{1}{2}$ ft.	2 ft. of sludge	29°	8.2 ***
174	3.0	8/25	3:15	$\frac{1}{2}$ ft.	$1\frac{1}{2}$ ft. of sludge	---	2.0
174	3.0	8/25	3:25	$\frac{1}{2}$ ft.	$1\frac{1}{2}$ ft. of sludge	---	0.0
174	2.9	8/25	3:40	1 ft.	Sludge	---	2.9

* Remarks: 6 inches of floating sludge and scum present

** Remarks: Heavy algae bloom

*** Remarks: Floating black sludge at mouth of stream

TABLE 3 (cont.)

Table

Stream Index Number	Mileage Index	Date	Time	Depth	Bottom Condition	Temp. C°	DO
174	1.7	8/24	1:55	$\frac{1}{2}$ ft.	Sludge	27°	4.0
174	2.4	8/24	2:00	$\frac{1}{2}$ ft.	3 ft. of sludge	25°	4.0
174	2.3	8/24	2:10	1 ft.	Sludge	25°	0.0
177	3.5	8/31	11:10	1 ft.	Sludge	---	2.0
177	3.3	8/31	11:15	1 ft.	-----	---	7.4
177	3.1	8/31	11:30	3 ft.	-----	---	6.8
177-2	0.2	8/31	10:20	1 ft.	Sludge	---	0.0
177-2	0.4	8/31	10:30	1 ft.	Sludge	---	0.0
177-2	0.0	8/31	10:40	2 ft.	Sludge	---	0.0
177	1.4	8/31	10:45	4 ft.	-----	---	1.4
177	3.4	8/23	2:15	3 ft.	-----	24°	9.6
177	3.7	8/23	2:05	1 ft.	Clear and clean	23°	9.8
183	2.2	8/23	2:45	$\frac{1}{2}$ ft.	3 inches sludge	22°	0.2

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CLASSIFICATION AND STANDARDS

It is the public policy of the State of New York to maintain reasonable standards of purity of the waters of the State consistent with public health and public enjoyment thereof, the propagation and protection of fish and wildlife, including birds, mammals and other terrestrial and aquatic life, and the industrial development of the State, and to that end require the use of all known available and reasonable methods to prevent and control the pollution of the waters of the State of New York.

The statement of purposes contained in the law reads as follows:

"It is the purpose of this article to safeguard the waters of the state from pollution by: (a) preventing any new pollution, and (b) abating pollution existing when this chapter is enacted, under a program consistent with the declaration of policy above-stated in the provisions of this article."

Before proper authority can be exercised to abate pollution, it is necessary to group the waters into classes according to consideration of the best usage in the interests

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of the public.

The waters of the Easterly Section of Great South Bay were officially classified on February 1, 1954, and those of Moriches Bay were officially classified on October 1, 1951. In adopting the classifications, due consideration was given to hydrological features, land usages bordering such waters or segments thereof; past, present and potential future water usages, and the extent of their present defilement resulting from past discharges therein.

The "Rules and Classification and Standards of Quality and Purity for Waters of New York State" constitutes the general system under which all surface waters of the State have been classified. The system establishes seven different classes for fresh surface waters and four classes for salt waters, based upon different usages of waters, with appropriate standards designed to assure maintenance of quality of waters at the level required for each class.

All four classes for salt water were applicable to the waters of Moriches Bay and the easterly section of Great South Bay. However, only three of the fresh water classes were utilized in classifying the fresh waters or tributary streams entering the bays.

The following fresh water classes were utilized:

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Class B -

The best usages for waters of this class are "Bathing and any other usages except as source of water supply for drinking, culinary or food processing purposes." The exception is stated for the reason that if the best usage of any waters is determined to include potable water supply usage, such waters must be placed in either Class AA or Class A.

Class C -

The best usages for waters of this class are "Fishing and any other usages except for bathing or as source of water supply for drinking, culinary or food processing purposes." Again, the exception is stated for the reason that if bathing or potable water supply usage is included as a best usage for any waters, such waters must be placed in a higher class.

Class D -

Class D is related to agricultural or industrial cooling or process water supply and other subordinate uses as the best usages.

The following salt water classes were utilized:

Class SA -

The best usage for waters placed in this class is "Shellfishing for market purposes and any other usages."

Class SB -

The best usages for waters of this class are "Bathing and any other usages except shellfishing for market purposes." The exception is stated for the reason that if the best usage is determined to include shellfishing for market purposes, such waters must be placed in Class SA.

Class SC -

The best usages for waters of this class are "Fishing and any other usages except bathing or shellfishing for market purposes." Again, the exception is stated for the reason that if the best usages are determined to include the excepted uses, the waters must be placed in a higher class.

Class SD -

The best usages for waters of this class are any other except those listed in the above classes.

The specific classifications for all waters in the Moriches Bay and easterly section of Great South Bay drainage basins are listed in Tables 4 and 5, included in this report.

TABLE 4

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
5	187-portion as described	Tributary of Patchogue Bay (Tide water section)	Enters Patchogue Bay from northwest approximately 1.0 mile northeast of Blue Point. Mouth to 0.4 mile above mouth.	2	SC	SC
6	187-portion as described	Tributary of Patchogue Bay (Fresh water section)	From 0.4 mile above mouth to source.	2	C	C
7	186-portion as described	Tuthills Creek (Tide water section)	Enters Patchogue Bay from the northwest approximately 1.5 miles northeast of Blue Point. Mouth to West Lake (P890).	2	SC	SC
8	186 - P890	West Lake	Located on 186 described as Item 7 approximately 1.0 mile above mouth.	2	B	B
9	186-portion as described	Tuthills Creek	From West Lake (P890) to source.	2	D	D
10	185-portion as described	Patchogue Creek (Tide water section)	Enters Patchogue Bay from the north 1.7 miles northeast of Blue Point. Mouth to Long Island Railroad tracks (approximately 0.8 mile).	2	SC	SC
11	185-portion as described	Patchogue Creek (Fresh water section)	From Long Island Railroad tracks to source excluding P885 and P889.	2	D	D
12	185-P885 and trib. 1	Great Patchogue Lake	Located on Patchogue Creek described as Item 10 & 11, approximately 1.3 miles above mouth.	2	B	B

TABLE 4 (cont.)

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
13	185-2 and trib. including P887	Tributary of Patchogue Creek	Enters Patchogue Creek from the north-west at northern end of Great Patchogue Lake described as Item 12.	2	C	C
14	185-3, 4 and 5	Tributaries of Patchogue Creek	Enter Patchogue Creek from the northeast and northwest approximately 1.2, 1.7 and 1.8 miles respectively, north of Rt. 27.	2	D	D
15	185-P889	Canaan Lake	Located on Patchogue Creek described as Items 10 and 11 approximately 1.3 miles north of Highway Rt. 27.	2	B	B
16	184a	Tributary of Patchogue Bay	Enters Patchogue Bay from the north approximately 0.5 mile east of Patchogue Creek described as Items 10 and 11.	2	SD	SD
17	184-portion as described	Swan Creek (Tide water section)	Enters Patchogue Bay from north approximately 1.0 mile south of village of East Patchogue. Mouth to P884 approximately 1.4 miles.	2	SC	SC
18	184-P884	Pond	Located on Swan Creek described as Item 17 approximately 1.4 miles above mouth.	2	B	B
19	184-portion as described & trib.	Swan Creek	P884 to source	2	D	D
20	183-portion as described	Mud Creek	Enters Patchogue Bay from the north approximately 0.7 miles east of Swan Creek described as Item 17. Tide water section.	2	SC	SC

TABLE 4 (cont.)

Item No.	Waters Index Numbers	Name	Description	Map Ref. No.	Class	Standards
21	183-portion as described	Mud Creek (Fresh water section)	From Tide water section to P883.	2	C	C
22	183-P883	Robinson Pond	Located on Mud Creek described as Item 20 approximately 1.1 miles above mouth.	2	B	B
23	183-portion as described and trib.	Mud Creek	From P883 to source.	2	D	D
24	182 and trib.	Abets Creek	Enters Patchogue Bay from the north approximately 1.8 miles northwest of Howell Point.	2	C	C
25	181-portion as described including P881	Hedges Creek (Tide water section)	Enters Patchogue Bay from the north approximately 1.1 miles west of Howell Point. Mouth to approximately 1 mile above mouth.	2	SB	SB
26	181-portion as described including P882	Hedges Creek (Fresh water section)	From approximately 1 mile above mouth to source.	2	D	D
27	180	Howell Creek	Enters Patchogue Bay from the north approximately 0.5 mile west of Howell Point.	2	SC	SC
28	P862	Pond	Located approximately 1 mile west Coram Hill.	2	D	D

TABLE 4 (cont.)

Item No.	Waters Index Numbers	Name	Description	Map Ref. No.	Class	Standards
29	GSB-portion as described	Great South Bay	That portion of Great South Bay situated southerly of a line connecting the southernmost extremities of Howell Point and Smith Point between lines passing due south through Howell Point and due south through Smith Point.	2	SA	SA
30	BB	Bellport Bay	That body of tidal water located northerly of a line between the southernmost extremities of Howell Point and Smith Point-excluding tributaries and estuaries.	2	SA	SA
31	P880	Pond	Tidal pond located 0.5 mile northeast of Howell Point.	2	SC	SC
32	179-portion as described and trib.	Tributary of Bellport Bay	Enters Bellport Bay from the north approximately 1.3 miles northeast of Howell Point. Tide water section.	2	SC	SC
33	179-portion as described	Tributary of Bellport Bay (Fresh water section)	From tide water section to source.	2	C	C
34	178-portion as described and tribs.	Beaverdam Creek	Enters Bellport Bay from the north approximately 0.7 mile east of the village of Bellport. Tide water section.	2	SD	SD
35	178-portion as described	Beaverdam Creek (Fresh water section)	From tide water section to source.	2	D	D

TABLE 4 (cont.)

Item No.	Waters Index Numbers	Name	Description	Map Ref. No.	Class	Standards
36	177-portion as described and Trib. 1	Carmans River (Tide water section)	Enters Bellport Bay approximately 2.0 miles northwest of Smith Point. Mouth to bridge on the Long Island Railroad approximately 3 miles.	2	SC	SC
37	177-2	Little Neck Run	Enters Carmans River from the northwest approximately 1 mile above mouth.	2	D	D
38	177-3	Tributary of Carmans River	Enters Carmans River from the northwest approximately 1.3 miles above mouth.	2	D	D
39	177-portion as described and Trib. 4 including P853, P854 and P855	Carmans River (Fresh water section)	From approximately 3 miles above mouth to P856	2	C	C
40	177-P856	Pond	Located on Carmans River approximately 0.5 mile northwest of the village of Yaphank.	2	B	B
41	177-portion as described	Carmans River	From P856 to source	2	D	D
42	177-P855A	Pond	Located approximately 0.5 mile southeast of the village of Yaphank.	2	C	C
43	P863	Artist Lake	Located approximately 2.0 miles west of the Camp Upton Military Reservation.	2	B	B
44	P864	Pond	Isolated pond located approximately 2.0 miles west of Camp Upton Military Reservation on Route 25.	2	C	C

TABLE 4 (cont.)

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
45	P875	Pond	Isolated pond located approximately 1.5 miles north of Middle Country Road and 0.3 mile west of Rocky Point Road.	2	C	C
46	P875A	Pond	Isolated pond located 0.1 mile southwest of P875 described in Item 45.	2	D	D
47	P867 and P873	Ponds	Isolated ponds located approximately 1.0 and 1.8 miles respectively north of Coram Hill.	2	B	B
48	P865, P866, P868	Ponds	Located approximately 0.8, 0.9 and 1.2 miles northeast of Coram Hill.	2	D	D
49	P869, P870, P870A	Ponds	Located in Coram.	2	D	D
50	P874	Ponds	Located approximately 3 miles north of Coram Hill.	2	D	D
51	Long Island Sound	Long Island Sound	That part of Long Island Sound located between a line extending due north through the westerly limit of Miller Place Beach which is approximately 1.5 miles west of Woodhull Landing and a line due north passing through a point 1.1 miles west of West Landing and extending to the N.Y. State boundary line.	2	SA	SA
Any other					D	D

TABLE 5

Item No.	Waters Index Numbers	Name	Description	Map Ref. No.	Class	Standards
CON'T						
3	176 d	Tributary of Narrow Bay	seconds West and Latitude 40 degrees 45 minutes 32 seconds north. Enters Narrow Bay approximately 0.25 mile north of southernmost extremity of Smith Point.	1,2	SC	SC
4	176 c	John's Neck Creek	Enters Narrow Bay approximately 0.7 mile Northeast of southernmost extremity of Smith Point.	2	SC	SC
5	176 b	Tributary of Narrow Bay	Enters Narrow Bay approximately 0.2 mile East of John's Neck Creek.	2	SC	SC
6	176 a	Tributary of Narrow Bay	Enters Narrow Bay approximately 1.25 miles northeasterly of southernmost extremity of Smith Point.	2	SC	SC
7	176	Pattersquash Creek	Enters Narrow Bay approximately 0.55 mile northwest of Pattersquash Island. The mouth of Pattersquash Creek shall be considered to be a line constructed perpendicular to channel axis of Pattersquash Creek passing through a point approximately one fourth mile due north of Latitude line 40 degrees 45 minutes 00 seconds as shown on reference map.	2	SC	SC

TABLE 5 (cont.)

Item No.	Waters Index Numbers	Name	Description	Map Ref. No.	Class	Standards
8	175 b	Tributary of Narrow Bay	Enters Narrow Bay approximately 0.75 mile east of Pattersquash Creek	2	SC	SC
9	175 a	Tributary of Narrow Bay	Enters Narrow Bay approximately 1.0 mile easterly of Pattersquash Creek.	2	SC	SC
10	none	Other unnamed tributaries to Narrow Bay and Moriches Bay	All tidal salt waters which are tributary from the north to Narrow Bay or Moriches Bay and which are shown on reference map but are not specifically designated in this table.	2	SC	SC
11	MB-1, MB-3, MB-5, MB-6	Moriches Bay portions as described	All portions of Moriches Bay except those portions designated as Item No. 12. Moriches Bay shall be considered as that body of tidal water as shown on reference maps, exclusive of tributaries, estuaries and coves as described later in this table situated northerly of Great South Beach, Pikes Beach and Westhampton Beach and extending from a line passing due South through the easternmost extremity of Forge Point to line passing due South through the southernmost extremity of Potunk Point.	2,3	SA	SA

TABLE 5 (cont.)

Item No.	Waters Index Numbers	Name	Description	Map Ref. No.	Class	Standards
12	MB-2, MB-4	Moriches Bay portions as described	Those portions of Moriches Bay which are situated northerly of a line connecting southernmost extremity of Masbury Point with the point of land as shown on the reference map located approximately 0.5 mile easterly from mouth of Terrell River	2	SB	SB
13	175 and tributaries shown on reference map	Tributary of Moriches Bay	Enters Moriches Bay approximately 0.5 mile southwest of Masbury Point	2	SC	SC
14	174 portion as described	Forge River	That portion of Forge River from mouth to a line connecting the northerly bank of Ely Creek at its mouth with the northerly bank of Tributary 4a at its mouth designated as Item No. 22. The mouth of Forge River shall be considered to be represented by a line perpendicular to channel axis of Forge River passing through the southernmost extremity of Masbury Point.	2	SC	SC
15	174 portion as described	Forge River	That portion of Forge River northerly of line connecting north banks of Ely Creek and Tributary 4a as described under Item No. 14.	2	SD	SD

TABLE 5 (cont.)

Item No.	Waters Index Numbers	Name	Description	Map Ref. No.	Class	Standards
16	174-1	Tributary of Forge River	Enters Forge River from West approximately 0.5 mile west and slightly north of Masbury Point	2	SC	SC
17	174-2 portion as described	Old Neck Creek	From mouth upstream a distance of 1500 feet. Enter Moriches Bay approximately 0.75 mile northwest of Masbury Point.	2	SC	SC
18	174-2 portion as described	Old Neck Creek	From point 1500 feet above mouth of Old Neck Creek to head of tide-water.	2	SD	SD
19	174-3	Poospatuck Creek	Enters Forge River approximately 1.0 mile northwest of Masbury Point.	2	SC	SC
20	174-4 portion as described	Ely Creek	Enters Forge River approximately 1.5 miles northwest of Masbury Point. From mouth upstream a distance of one-fourth mile measured along channel axis.	2	SC	SC
21	174-4 portion as described	Ely Creek	From point one fourth mile above mouth to head of tidewater.	2	SD	SD
22	174-4a	Tributary of Forge River	Enters Forge River approximately 0.5 mile north of Poospatuck Creek.	2	SC	SC
23	P850	Known as West Pond	Located on Forge River immediately north of Montauk Highway.	2	C	C

TABLE 5 (cont.)

Item No.	Waters Index Numbers	Name	Description	Map Ref. No.	Class	Standards
24	174 portion as described	Forge River	Above P850	2	D	D
25	P851	Known as East Pond	Tributary of Forge River located immediately north of Montauk Highway.	2	D	D
26	P851-1,2	Tributaries of East Pond	Enter near upper terminus of East Pond.	2	D	D
27	173	Senix Creek	From mouth to head of tide-water. Enters Moriches Bay approximately 0.55 mile north-east of Masbury Point.	2	SC	SC
28	173-1 portion as described	West Senix Creek	From mouth upstream a distance of 3,000 feet measured along channel axis. Enters Senix Creek approximately 0.1 mile above mouth of Senix Creek.	2	SC	SC
29	173-1 portion as described	West Senix Creek	From point 3,000 feet above mouth of West Senix Creek to head of tidewater.	2	SD	SD
30	172	Areskand Creek	Enters Moriches Bay approximately 0.6 mile easterly from Senix Creek.	2	SC	SC
31	171 and tributaries	Orchard Neck Creek	Enters Moriches Bay approximately 0.65 mile easterly from Areskand Creek.	2	SC	SC

TABLE 5 (cont.)

Item No.	Waters Index Numbers	Name	Description	Map Ref. No.	Class	Standards
32	170 a and tributaries	Tributary of Moriches Bay	Enters Moriches Bay approximately 0.5 mile east of Orchard Neck Creek,	2	SD	SD
33	170 or P846 portion as described	Terrell River	From mouth upstream a distance of 1000 feet.	2	SC	SC
34	170 or P846 portion as described	Terrell River	From point 1000 feet above mouth to head of tidewater.	2	SD	SD
35	170-1,2	Tributaries of Terrell River	Enter Terrell River from east at points approximately 0.35 and 0.6 mile above mouth respectively.	2	SD	SD
36	P847	Pond	Tributary of Terrell River located immediately north of Montauk Highway.	2	B	B
37	170 portion as described	Terrell River	Above P847.	2	D	D
38	TC-1	Southerly half of Tuthill Cove	That portion of Tuthill Cove which is situated southerly of a line extending across and perpendicular to channel axis of Tuthill Cove at point midway between mouth of Tributary 169a, designated as Item No. 40 and a line connecting the two Tuthill Points as shown on reference map. The mouth of Tuthill Cove shall	2,3	SA	SA

TABLE 5 (cont.)

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
CON'T						
39	TC-2	Northerly half of Tuthill Cove	be considered to be represented by a line connecting the tow Tuthill Points as shown on reference map. That portion of Tuthill Cove situated northerly of line extending across and perpendicular to channel axis of Tuthill Cove at point midway between mouth of Tributary 169a and line connecting the two Tuthill Points as shown on reference maps.	2	SC	SC
40	169a	Tributary of Tuthill Cove	Enters Tuthill Cove between Paquetuck and Adelaid Avenues.	2	SD	SD
41	HC-1	Southerly half of Hart's Cove	That portion of Hart's Cove situated southerly of a line extending across and perpendicular to channel axis of Hart's Cove at a point midway between mouth of Tributary 169 designated as Item No. 44 and a line connecting Haven Point and Tuthill Point across the mouth of Hart's Cove. The mouth of Hart's Cove shall be considered as represented by a line connecting Haven Point and Tuthill Point.	2,3	SA	SA
42	HC-2 portion as described	Portion of northerly half of Hart's Cove	That portion of Hart's Cove situated northerly of a line extending across and perpendicular to channel axis of Hart's Cove at a point midway between mouth of Tributary 169 designated as Item No. 44 and mouth of Hart's Cove.	2.3	SB	SB

TABLE 5 (cont.)

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Standards Class
CON'T					
43	HC-2 portion as described	Portion of northerly half of Hart's Cove	and southerly of a line constructed 0.25 mile north of and parallel to the aforesaid described line. That portion of Hart's Cove situated northerly of a line 0.25 mile north of and parallel to a line extending across and perpendicular to channel axis of Hart's Cove at a point midway between mouth of Tributary 169 and mouth of Hart's Cove.	2, 3	SC SC
44	169	Tributary of Hart's Cove	Enters at upper terminus of Hart's Cove.	2	SD
45	169-1	Tributary to tributary of Hart's Cove.	Enters Tributary 169 approximately 0.15 mile north of mouth of 169.	2	SD
46	168a and tributary	Tributary of Hart's Cove	Enters from east approximately 0.3 mile west of Haven Point.	3	SD
47	SC-1	Southerly half of Seatuck Cove.	That portion of Seatuck Cove situated southerly of a line connecting the north banks of the mouths of Tributaries 168 and 165, designated as Item Nos. 50 and 51, respectively. The mouth of Seatuck Cove shall be considered to be represented by a line connecting Haven Point and the westerly bank of Tributary 164a at its mouth, designated as Item No. 63.	3	SA

TABLE 5 (cont.)

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
48	SC-2	Northerly half of Seatuck Cove	That portion of Seatuck Cove situated northerly of a line connecting the north banks of the mouths of Tributaries 168 and 165.	3	SC	SC
49	168 portion as described	Tributary of Seatuck Cove	From mouth to head of tidewater. Enters Seatuck Cove from West approximately 0.6 mile north of Haven Point.	3	SC	SC
50	168 portion as described	Tributary of Seatuck Cove	Above head of tidewater.	3,2	C	C(T)
51	165	Tributary of Seatuck Cove	Enters Seatuck Cove from east approximately 0.75 mile southerly of East Branch.	3	SC	SC
52	167	Seatuck Creek	Enters Seatuck Cove approximately 0.3 mile Westerly of East Branch.	3	SD	SD
53	167-1 portion as described	Tributary of Seatuck Creek	Enters Seatuck Creek approximately 0.2 mile West of mouth of Seatuck Creek. From mouth to head of tidewater.	3	SD	SD
54	167-1 portion as described	Tributary of Seatuck Creek	Above head of tidewater.	3	C	C

TABLE 5 (cont.)

Item No.	Waters Index Numbers	Name	Description	Map Ref. No.	Class	Standards
55	167-1a,1b	Tributaries of Seatuck Creek	Enters from East and West approximately 0.35 and 0.5 mile, respectively above mouth of Seatuck Creek.	3	SD	SD
56	P840b and	Pond	Tributary of Seatuck Creek located immediately north of Montauk Highway.	3	B	B
57	P840C tributary	Pond	Tributary of P 840b.	3	C	C
58	P841a and tributary	Pond	Tributary of P840b.	3	C	C
59	166 portion as described	East Branch	Enters Seatuck Cove at upper terminus of Seatuck Cove. From mouth to head of tidewater.	3	SD	SD
60	166 portion as described	East Branch	From head of tidewater to P839 designated as Item No. 61.	3	C	C
61	P839	Pond	Located on East Branch north of Long Island Railroad.	3	C	C
62	166 portion as described	East Branch	Above P839.	3	D	D
63	164a	Tributary of Moriches Bay	Enters Moriches Bay approximately 0.5 mile southeast of Tributary 165.	3	SC	SC
64	164	Tributary of Moriches Bay	Enters Moriches Bay approximately 0.05 mile east of Tributary 164a.	3	SD	SD

TABLE 5 (cont.)

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
65	163c	Tributary of Moriches Bay	Enters Moriches Bay approximately 0.25 mile east of Tributary 164.	3	SC	SC
66	163a, 163b	Tributaries of Moriches Bay	Enter Moriches Bay approximately 0.2 and 0.4 mile, respectively west of Speonk Point.	3	SC	SC
67	SPC	Speonk Cove	Mouth of Speonk Cove shall be considered as represented by a line connecting Speonk Point with westerly bank of Tributary 162c at its mouth, designated as Item No. 770.	3	SC	SC
68	163	Speonk River	Enters at upper terminus of Speonk Cove.	3	SD	SD
69	P837a and tributary	Pond	Located on Speonk River immediately north of Montauk Highway.	3	B	B
70	162c	Tributary of Moriches Bay.	Enters Moriches Bay approximately 0.25 mile east of mouth of Speonk River.	3	SD	SD
71	162a	Tributary of Moriches Bay	Enters Moriches Bay approximately 0.3 mile west of Apautuck Point.	3	SD	SD
72	162b	Tributary of Moriches Bay	Enters Moriches Bay approximately 0.4 mile east of Tributary 162c.	3	SD	SD

TABLE 5 (cont.)

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Standards
73	BC	Beaverdam Cove	Mouth of Beaverdam Cove shall be considered as represented by a line connecting Apautuck Point with point of land extending into Moriches Bay approximately 0.15 mile south of mouth of Tributary 161a designated as Item No. 79.	3	SA SA
74	162 portion as described	Beaverdam Creek	Enters at upper terminus of Beaverdam Cove. Mouth to head of tidewater.	3	SC SC
75	162 portion as described	Beaverdam Creek	From head of tidewater to P837 designated as Item No. 76.	3	C C
76	P837	Beaverdam Pond	Located on Beaverdam Creek immediately north of Old Country Road.	3	B B
77	P837-1	Tributary of Beaverdam Pond	Enters Beaverdam Pond at Westerly Terminus.	3	D D
78	P837-2	Tributary of Beaverdam Pond	Enters Beaverdam Pond at Northerly Terminus.	3	C C
79	161a, 161b	Tributaries of Beaverdam Cove	Enter Beaverdam Cove approximately 0.1 and 0.4 mile, respectively southeast of mouth of Beaverdam Creek.	3	SC SC

TABLE 5 (cont.)

Item No.	Waters Index Numbers	Name	Description	Map Ref. No.	Class	Standards
80	161 and tributary	Tributary of Moriches Bay	Enters Moriches Bay approximately 0.5 mile west of Potunk Point	3	SD	SD
81	160a	Tributary of Moriches Bay	Enters Moriches Bay approximately 0.1 mile northwest of Potunk Point	3	SC	SC
82	AO portion as defined	Atlantic Ocean	Extending from shore 3 miles between a line passing due south through Smith Point to a line passing due south through Potunk Point.	1,2,3	SA	SA

TABLE 6

CLASSIFICATIONS AND STANDARDS OF QUALITY AND PURITY
 ASSIGNED TO FRESH SURFACE WATERS AND TIDAL SALT WATERS
 WITHIN THE
 GREAT SOUTH BAY-EASTERLY SECTION DRAINAGE BASIN

Item No.	Waters Index Number	Name	Description	*Map Ref. No.	Class	Standards
1	AO-portion as described	Atlantic Ocean	Portion extending three miles seaward from Great South Beach between a line passing due south through Blue Point and a line passing due south through Smith Point.	2	SA	SA
2	GSB-portion as described	Great South Bay	That portion of Great South Bay situated southerly of a line connecting the southernmost end of Blue Point with the southernmost extremity of Howell Point and extending from a line passing due south through Blue Point to a line passing due south through Howell Point.	2	SA	SA
3	PB	Patchogue Bay	Patchogue Bay shall be considered as that body of tidal water exclusive of tributaries and estuaries situated northerly of a line connecting the southernmost extremities of Blue Point and Howell Point.	2	SA	SA
4	188	Tributary of Patchogue Bay	Enters Patchogue Bay from the northwest approximately 0.5 mile north of Blue Point.	2	SD	SD

* Refers to maps in Suffolk County Survey Series Report No. 3

TABLE 7
CLASSIFICATIONS AND STANDARDS OF QUALITY AND PURITY
ASSIGNED TO FRESH SURFACE WATERS AND TIDAL SALT WATERS
WITHIN THE
MORICHES BAY DRAINAGE BASIN

Item No.	Waters Index Numbers	Name	Description	*Map Ref. No.	Class	Standards
1	NB-1	Narrow Bay portion as described	All portions of Narrow Bay except those portions designated as Item No. 2. Narrow Bay shall be considered as that body of tidal water, as shown on the reference maps, exclusive of tributaries and estuaries described later in this table situated northerly of Great South Beach and extending from a line passing due South through Smith Point to a line passing due South through the easternmost extremity of Forge Point.	1,2	SA	SA
2	NB-2	Narrow Bay portion as described	Those portions of Narrow Bay situated northerly of a line connecting the southernmost extremity of Smith Point with point of land shown on reference map as approximately at Longitude 72 degrees 50 minutes 56 seconds West and Latitude 40 degrees 44 minutes 43 seconds north; and those portions of Narrow Bay northerly of a line connecting aforesaid point of land, with the point of land as shown on reference map as approximately at Longitude 72 degrees, 49 minutes 6	1,2	SB	SB

* Refers to maps in Suffolk County Survey Series Report No. 3

R. D. Hennigan

MR. HENNIGAN: My name is Robert D. Hennigan, and I am Director of the Bureau of Water Resource Services for the New York State Department of Health.

This report was prepared for presentation at the Federal Enforcement Conference on Pollution of the Waters of Moriches Bay and the Eastern Section of Great South Bay, scheduled to be conducted here today.

The Department of the Interior report, "Pollution of the Navigable Waters of Moriches Bay and Eastern Section of Great South Bay - September, 1966," describes generally the factors affecting water quality in the study area which is the subject of this conference.

The purpose of this report is to augment the information in the Federal Water Pollution Control Administration report, and to be responsive to the issues raised.

This report is only a portion of New York State's presentation. Information and data directly relating to shellfish sanitation, supervision and control, will be presented separately by the State Department of Conservation.

As an aside, I would comment that Paul DeFalco's report, I think, was as complete and factual as any report I have ever heard, and that it would serve no purpose for me to go ahead and try to repeat much of the information which he has already presented to you.

R. D. Hennigan

The reports represent Federal, State and local cooperative efforts, since the information in them is drawn from reports prepared by and activities carried out by agencies at all levels of government.

This reemphasizes the intergovernmental nature of this particular problem, and the need for an effective Federal-State-local partnership to assure its eventual solution.

This report contains a summary of action to date, and, if you will bear with me, I think some of this material can bear repeating.

The major action to date includes the action of Suffolk County in providing some \$18,000 to do a research program on the treatment of duck wastes.

The present efforts of the duck industry in constructing a 50,000-gallon-per-day secondary treatment facility were alluded to before. It is the one that the State Department of Health will cooperate with the local people in, in providing a chemist and also providing some money for the first six months of operation and maintenance.

All of the duck farmers are now under an order, as mentioned by Dr. Ingraham.

The State of New York has assisted the county with its comprehensive study efforts, and this was again

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alluded to by Mr. Dennison.

A study of the sewage needs of the five western towns is nearing completion. An application for a similar study for the five eastern towns is approved and will soon be under way.

A county-wide water supply study is under way. Planning grants from the county currently total \$1,605,000. The county has agreed to augment this amount by \$450,000 in connection with its water supply study.

A county sewer agency was formed and has moved rapidly in the past year and a half to provide needed collection and treatment facilities for populated areas.

A referendum on District No. 1 will be conducted early next year.

The 1966 State Legislature enacted legislation providing for the control of waste discharges from boats. The legislation provides for approval of holding tanks and treatment facilities, as well as on-shore treatment works by the State Health Department. The actual enforcement activity will be a responsibility of the Division of Boats in the State Conservation Department.

In addition to the summary of action, we have some recommendations which we would like to present to the conferees and to the people from the Federal Government

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for their concern. Again, this is somewhat repetitive, but it bears repeating.

An effort should be made to stabilize Moriches Inlet and also to dredge estuaries to improve conditions of tidal flushing. This is essential to obtain optimum use of the tidal areas for recreational and commercial activities, such as boating, fishing, swimming, and for the harvesting of shellfish.

The second recommendation is to provide incentives for industry to construct waste treatment facilities.

Next, to increase construction grants. The residents of Suffolk County face tremendous costs in providing both collection and treatment facilities to serve the five western towns.

Now, Mr. Dennison was talking about the tremendous population growth ahead of you and the long-range program. We certainly do not have any time to lose in this particular area.

In addition to this, additional research on algal nutrients and economic methods to remove these nutrients from both municipal and industrial wastes must be accelerated, and conclusions reached, and practical solutions proposed that can be incorporated into ongoing pollution abatement programs.

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The report further contains some information on hydrography, the classifications and standards systems.

As you know, all these waters have been classified by the State. A typical order issued on the duck farms in the area and tabulations of municipal and industrial waste discharges under present conditions, the analysis of effluents from duck farms, and the water quality of receiving streams, is shown by samples collected in August 1966. All these tabulations but bear out what everybody has been saying here today, that there is substantial pollution going into these waters from the duck farms. At the present time there are violations of most of the State standards in the classified waters.

The study area is a small part of the total Long Island picture concerning water quality management and the water resource problem. This was alluded to by Dr. Ingraham and also by Mr. Montanari. All of us recognize this.

However, the conference called on the study area concerned itself fundamentally with the protection of shellfish through the elimination of pollution and other needed action, and focuses on the duck farm industry.

There are three major elements to this problem. One is the elimination of pollution and its source by effective treatment at the duck farms and other sources of

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pollution in the area.

Second is dredging to remove existing sludge banks and deposits where they adversely affect water quality and water use.

Thirdly, the maintenance of inlets to Moriches Bay and Great South Bay to insure desirable tidal action and flushing.

There are other concerns in evaluating the total water quality and the water resource management picture on the south shore of Long Island, the main one being the provision of adequate municipal waste collection and treatment systems.

All of the duck farms have recently been put under a new order and timetable which calls for secondary treatment and the effective disinfection and removal of phosphates. Research studies indicate that this can be accomplished.

The municipal sewage treatment plants will either be included in the proposed county district, or will proceed uniformly to provide secondary treatment.

A schedule has been worked out with the poultry processing plant mentioned in the Federal report, and an order will be issued in the near future adhering to the schedule followed with the duck farms.

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Removal of existing sludge banks and steps to insure the needed tidal action in both bays needs to be definitely spelled out in a future program of action.

Suffolk County has done much on its own to seek solutions to existing problems. The county has financed and conducted an independent research study on duck waste treatment methods, has expended county funds to maintain inlets and waterways, and has most recently pledged this \$450,000 in support of a comprehensive intermunicipal public water supply study, which will give adequate attention to water quality problems, particularly as they affect domestic use.

The material presented in this report is intended to facilitate the deliberation of the conferees in making recommendations for action and for providing up-to-date information on water quality, pollutional sources, comprehensive planning and enforcement of anti-pollution statutes.

Thank you.

MR. STEIN: Thank you.

Are there any questions or comments?

(No response.)

MR. STEIN: If not, let me ask you this:

When you talk about 85 percent removal of suspended solids with duck farms and biological oxygen demand and

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effective disinfection and removal of phosphates, how do you think this can be accomplished? How do you expect it? Can you expand on that? Where would the wastes be taken?

MR. HENNIGAN: The Cosulich study, which was a research study supported by the county, came up with a positive solution in terms of providing aerated lagoons, and with the addition of chemical precipitation at certain points in the process, they feel that the nutrient removal can be effected also.

Now, the purpose of the treatment plant which is now under construction, a 50,000-gallon-a-day plant, is to prove out what laboratory research has indicated is possible.

MR. STEIN: The question I asked is, where are you going to have the aerated lagoons? On each farm? Are you going to have a collection system and take them to a central point?

MR. HENNIGAN: That will depend on how close each one of the farms is to each other, and also how the whole program can be worked out.

In terms of the State grant and aid program for construction and also for operation and maintenance, there is some advantage to providing these treatment facilities through some agency of local government.

If this is possible and it becomes a municipal

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treatment facility owned and operated by a municipality, it will enable these people to take advantage of these State-aided programs. If it is not done as a municipal undertaking, I think it would be difficult to expect that very many of the farms, unless they are the ones in very close proximity one to the other, will get together to provide a joint treatment works, although in some instances -- in fact, at this point I couldn't tell you whether it would be desirable to do it on a unilateral basis on each farm, or whether some farms should be consolidated, or just what would be the best solution.

MR. STEIN: Well, this leads to the next point.

MR. HENNIGAN: All right.

MR. STEIN: Because I would agree with all of your points, but you talk about the New York State recommendations, and I think I would like particularly to address myself to Recommendations 2 and 3.

The recommendations, if you recall, were (1) to stabilize Moriches Inlet and dredge estuaries, (2) to provide incentives for industry, (3) increase construction grants, and (4) research on algal nutrients and economic methods to remove these nutrients.

I think we can agree with Nos. 1 and 4. However, when we get to Moriches Inlet, we probably will need

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Congressional authorization, but I think Nos. 2 and 3 need consideration. This may be something that the State and the industries should consider.

On this notion of providing incentives for industry to construct waste treatment facilities, bills like this have been introduced in the Congress since 1948. I don't know about 1946. When I first got out of the Army, I wasn't watching that closely, but at least since 1948 they have been introduced.

They have to be in the form of an amendment not to our Act, but to the Internal Revenue Code.

To my knowledge, there has never been a hearing in the House or the Senate, in either the Senate Finance Committee or the House Ways and Means Committee. I think there is more and more sentiment growing for this, but I don't know that any tax measure that I remember has ever passed without the substantive committees in the Congress being for them.

Senator Ribicoff, who is on the Senate Finance Committee -- and this was after he was our Secretary and very familiar with this problem, after he became Senator -- tried to get this provision through. They had a complete revision of the Internal Revenue Code. Out of a 21-man committee, I think he got one or two votes, but he took it

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up on the Floor in another form, and it passed. However, the provision was dropped in conference. It never got up in the House.

Now, I think the answer here is clear. For whatever the reasons, there are many psychological barriers, it would seem, at the present time in the Congress, for the Federal Government to provide direct financial incentives to industry to treat its wastes.

However, there is one thing. If a municipality owns the waste treatment facilities—and the municipality can be a district, county, etc.—if the public body owns it, we can participate even though they are treating industrial wastes.

It was pointed out that we did give a grant years ago for duck wastes, and, well, it hasn't been quite put in effect. I do not think we have the psychological barrier in providing Federal finances for a publicly-owned facility to treat wastes, even though they are industrial wastes.

I hope that I am correctly expressing industry's viewpoint when I say that it really doesn't matter to industry who treats the waste. You don't want to own the waste treatment facility. You are not in the waste treatment business. If you give this to a municipality, or you

put it in the municipal system, the industry no longer has the technical nor the legal responsibility for treating the wastes.

I am asking you to look at this because this may require some ingenuity. That is why I raised this question with Bob Hennigan.

It is obvious that the kind of municipal solution presents itself to you if you are going to pipe all this waste to a central point and treat it centrally. However, if you are going to have various lagoons spread around the county and treat them in these lagoons, it is not so obvious.

A possible way to get Federal aid is to let the municipality or the county or a district run those, let them be in charge and treat the wastes at these various locations. It makes no difference to us.

However, what I am pointing out is if you are talking in terms of Federal aid, and this may be considerable, which I will come to in a moment, you may wish to consider processing these industrial wastes -- and duck wastes are industrial wastes -- through a municipally owned plant.

The question of increasing construction grants is before the Congress now. As you know, we can give a grant up to 30 percent now, and New York with its bond issue gives a grant. While we heard testimony before that the billion

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dollars wasn't enough, I have heard that same kind of pitch, which I think is a good one, from every populated county manager and mayor in the country -- Mayor Locher of Cleveland says the same thing, and Mayor Lindsay had the same statement before the Senate a while ago on the amount of money they needed. Maybe a billion dollars isn't enough, but I must tell you that the Senate is trying to put through a \$6 billion program for the whole country, and we have not done that yet. The House has that down to 2.4. I think \$1 billion is better than any other State in the Union has done.

However, there is legislation before the Congress now which might increase the Federal grant from 30 percent, under appropriate circumstances, to 40 or 50 percent. Take that with your State grant and you have quite a bit.

The point, though, is that the Federal grants and, as far as I know, the State grants can only go to public bodies. Is that correct?

MR. HENNIGAN: That is correct. Absolutely.

MR. STEIN: Now, with you in this area, and particularly your duck wastes, I think that this is a problem of local ingenuity. If you are going to get this Federal or State aid, or both, which I hope you do, there is one prerequisite, and that is that the facility must be owned

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by a public body.

Again, look at your map. If it is more feasible or economical to have the plants spread around, as Bob indicated might be the way, it is still not impossible to have these owned by a public body. This is the determination that you people have to make.

Money is going to be the crux of the issue, and this may very well be a consideration worth looking into.

I have taken all this time to explain this for a real purpose, because I think this is the approach that is going to enable you to get Federal and State assistance in the future.

Are there any comments?

MR. HENNIGAN: Murray, I would like to make a comment, and that is a caution to the industry.

First of all, a State will not mandate that a municipality take on an industrial waste problem or provide treatment for any type of industrial wastes. That is a local determination.

Whether or not the municipality will take on a particular problem and want to treat it through a municipal treatment works, is a problem that must be worked out locally. It can't be used as an excuse not to comply with the existing orders issued against any industry, and

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particularly against the duck farms.

The present discharges and the facilities from which they originate are fundamentally the responsibility of the owner. If local government officials or local municipalities do not choose to work cooperatively with you in this area, or for some reason do not want to provide the service, then that is your problem.

MR. STEIN: Bob, I might say that the Federal position is exactly the same on that.

In so many of these areas, we see eye to eye with you. There is absolutely not one iota of difference between our position and your position on this matter.

MR. METZLER: I have no questions.

MR. STEIN: Do you have any questions?

MR. KLASHMAN: No.

MR. STEIN: Thank you very much, Mr. Hennigan.

Mr. Metzler?

MR. METZLER: Mr. Edward Morette indicates that he must leave shortly. In order that we may hear this statement, I would like him to make his presentation now.

Mr. Morette, as you know, is President of the New York State Conservation Council.

Mr. Morette.

E. Morette

STATEMENT OF EDWARD MORETTE, PRESIDENT,
NEW YORK STATE CONSERVATION COUNCIL

MR. MORETTE: I had written this report out for the Chairman and his committee because I was leaving, but they asked me if I could stay a few minutes more and they would give me a few minutes.

As Mr. Metzler said, I am the President of the New York State Conservation Council. That is the organized sportsmen in this State, and we have many members in this room. We have over 350,000 paid memberships in this State, and we have an organization in every county.

We were the group that helped you people to show our support in your Fire Island battle. My predecessor was Bob Young, who is the new Deputy Commissioner of Conservation. Several people in this room have told me what Bob and the organization did to help you get your Fire Island, so I think that conclusively shows the vital interest that the organized sportsmen of this State have in your problem that you are discussing here today.

I congratulate the Chairman and his committee on your Federal, State and local water pollution conference to control the pollution in Great South Bay and Moriches

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Bay on Long Island's south shore. The New York State Conservation Council wholeheartedly supports the control and the elimination of all water and air pollution throughout the entire State of New York.

Our position on pollution is very well known, and our sportsmen's organization was the first to advocate a complete water pollution program in our State. We wholeheartedly supported Governor Nelson Rockefeller's \$1,700,000,000 Pure Waters Program at the last State election, which came to a very successful vote of all the people.

Our Chairman of the New York State Conservation Council Marine District is Mr. John Binner of Long Island, and John will submit a written statement to your committee, which will be for the public record.

I want to assure the Federal and State governments and the local people that if they will take in the organized sportsmen, the members of the Izaak Walton League, the Federated Garden Clubs, the League of Women Voters -- if they will take them into their family when they are discussing these problems, they are going to go a lot faster and a lot quicker. I am sure that even the duck men who are here today are going to find out that they should be invited, because I think the duck men are going to eliminate this problem and still raise ducks in Long Island.

E. Morette

I like the ducks. It is a wonderful industry for New York State, and it is going to help a lot of people, but, as the State and Federal men told you, you have to eliminate their pollution.

We are not only after the duck people. I am harassing the pulp and paper industry in my county. I come from the Adirondacks, and I have one of the first polluters right in my own hometown, the largest paper company in the world. So don't think that you are the only one that has muddy waters. It is going to cost them at least \$3 million to eliminate the pollution in this one paper mill, but they are going to do it. I am sure that you duck men can do it with this engineer who talked here a little earlier, who will solve the problem that Bob was talking about.

I think if you all cooperate, we are going to get what we all want -- clean water -- and you are still going to raise your ducks and get your clams and shellfish.

Thank you very much, Mr. Chairman, for this opportunity.

MR. STEIN: Thank you, Mr. Morette.

Are there any comments or questions?

MR. METZLER: No, I think not.

This is a very constructive statement, and after having met with about 30 paper companies last week, I am

delighted that you are helping us a little bit here too -- in fact, a great deal.

We have a feeling that a great many of them still don't believe that we have a new era in New York State as far as pollution from paper wastes is concerned.

MR. MORETTE: You put the whip to them and they will do it. You have been babying them too long.

(Laughter.)

MR. STEIN: Thank you very much.

You know, you talk about taking you in. I guess most of us spend most of our week-ends meeting with you people. I don't know who is taking whom in, and certainly we have taken you in; but I would hate to have the job of keeping you out.

(Laughter.)

Mr. Metzler?

MR. METZLER: The last presentation from the State of New York is one that we have been intentionally saving for last. That is, Mr. David Wallace, who is Director of Marine Fisheries from the New York State Conservation Department.

MR. STEIN: Before we hear Mr. Wallace, we will stand recessed for five minutes.

(Whereupon a recess was had.)

MR. STEIN: May we reconvene?

MR. METZLER: We are ready for you now, Dave.

STATEMENT OF DAVID H. WALLACE, DIRECTOR,
BUREAU OF MARINE FISHERIES, STATE OF NEW
YORK CONSERVATION DEPARTMENT

MR. WALLACE: Mr. Stein, State and Federal
conferees, ladies and gentlemen:

The shellfisheries in the bays along the south shore of Long Island are composed of four major species, with minor production of a few other molluscs. The important commercial species are the hard clam (Mercenaria mercenaria), the oyster (Crassostrea virginica), the soft clam (Mya arenaria), and the bay scallop (Aequipecten irradians). The edible mussel (Mytilus edulis) and the razor clam (Ensis directus) are also taken in limited quantities in the area covered by this proceeding, i.e., from the Patchogue River in Great South Bay to Shinnecock Bay. Over the years, the ecology of the area has changed drastically when inlets have cut through the barrier beach. The last major change was the opening of Moriches Inlet, with a marked transition from a brackish to a more marine

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environment.

The growth and development of duck farms along the tributaries in the eastern part of Great South Bay and Moriches Bay have also had a profound effect on the ecology of the area. These changes have modified the marine habitat physically, chemically, and biologically. The physical manifestations are the accumulation of heavy sludge deposits in the creeks and coves. The chemical changes are increased quantities of nitrates and phosphates in the overlaying waters of the creeks and the adjacent bay waters. High concentrations of coliform organisms and fecal coliform organisms indicate some of the biological alterations that have taken place.

The bacteriological, physical and hydrographic conditions in the bays have been analyzed and evaluated by this agency in two sanitary surveys, one, the sanitary survey of Bellport Bay, which was made in 1964; and one, the sanitary survey of Moriches Bay, which was made in 1966.

Mr. Stein, I would like to ask permission to submit these two sanitary surveys as part of the record, without reading them, because they are rather extensive.

MR. STEIN: They will be incorporated in the record as exhibits, and will be available at our Regional Office for perusal.

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MR. WALLACE: And I will have additional copies for you.

MR. STEIN: Thank you.

(The documents referred to will be contained in the files of the Department as exhibits.)

MR. WALLACE: The creeks on which the duck farms are located are of limited acreage and probably never were major grounds in shellfish production. All of them are brackish and would be capable of supporting hard clams only at or near their mouths, since the hard clams must have salinities of 15 parts per thousand, or greater, to survive, reproduce and grow. Bay scallops also prefer higher salinities, although oysters and soft clams can live in salinities as low as 8-10 ‰.

The normal distribution of shellfish within the area of consideration is generally in the bays themselves -- and I would like to present, Mr. Chairman, two figures, which are representations of the shellfish grounds generally as they are located in the bays. I would also like to have them incorporated as part of the record.

MR. STEIN: We will incorporate these in the record.

I am not sure, Mr. Wallace, that we will be able

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to reproduce these in exactly the size you have given us, because of the folds, but we will see how they come out in a reduced form and put them in the record.

MR. WALLACE: If it would be more helpful, we could have them condensed into a legal size, at least.

MR. STEIN: I think if you could have this condensed so that we don't have a fold-up, and perhaps substitute one with a cross-hatch, without color, you could get the charts exactly the way you wish, and we will reproduce them.

MR. WALLACE: All right. I will do that.

MR. STEIN: Thank you.

MR. WALLACE: However, this statement should not be interpreted as indicating that the duck farm pollution has not damaged shellfishing.

I am also saying that in the creeks themselves, the habitat is not necessarily too desirable for the production of natural shellfish. Some 6,100 acres of natural shellfish habitat are closed or restricted because of the pollution from the duck farms (Exhibits A and B). The shellfish in the closed areas have not been marketable for the last 25 years because of the high coliform and fecal coliform content of the water. It is impossible to arrive at a completely firm figure of the amount of shellfish lost

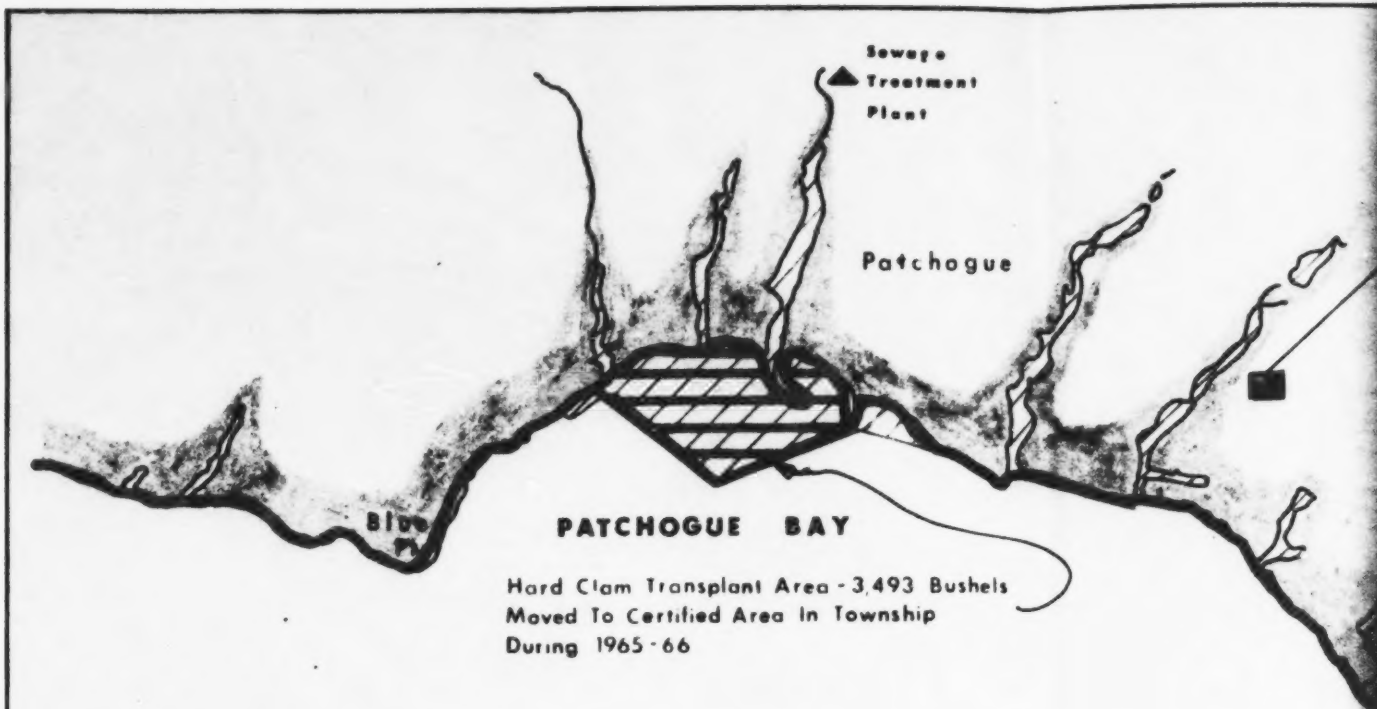
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to the industry over the last 20 years in these restricted waters. However, in the adjacent waters of eastern Great South Bay and Moriches Bay, a sustained commercial shellfish industry has and does still exist. (Tables 1, 2, and 3).

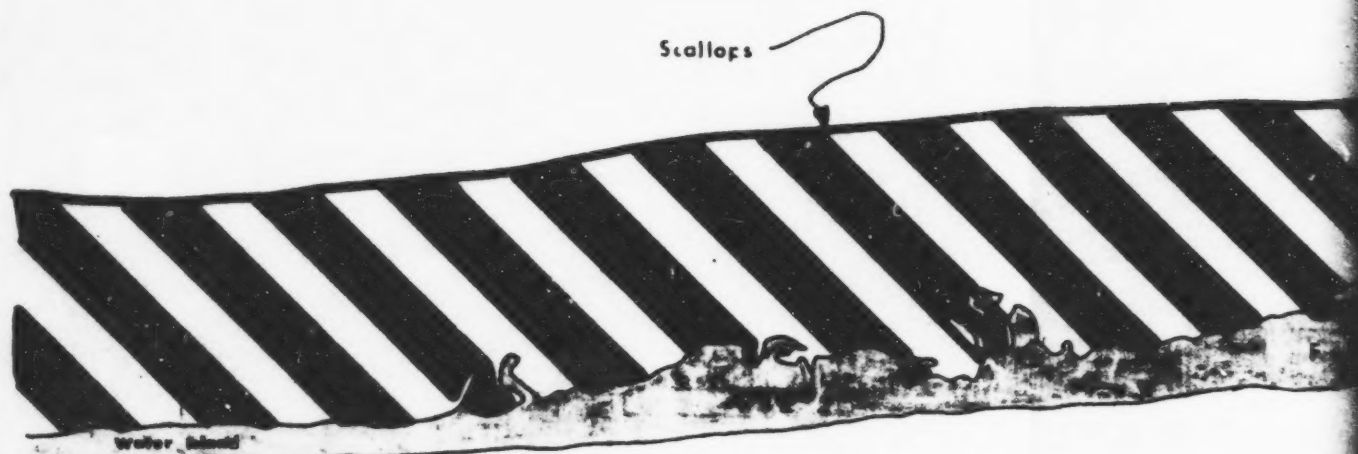
Assuming that the production per acre of the appropriate shellfish grounds in the closed areas would be approximately the same as for the adjacent open areas, the hard clam loss in 1965 would amount to 22,875 bushels, which at a rate of \$10 per bushel would mean a loss of \$228,750. Over the last five years, the total loss to the producer probably was about one million dollars.

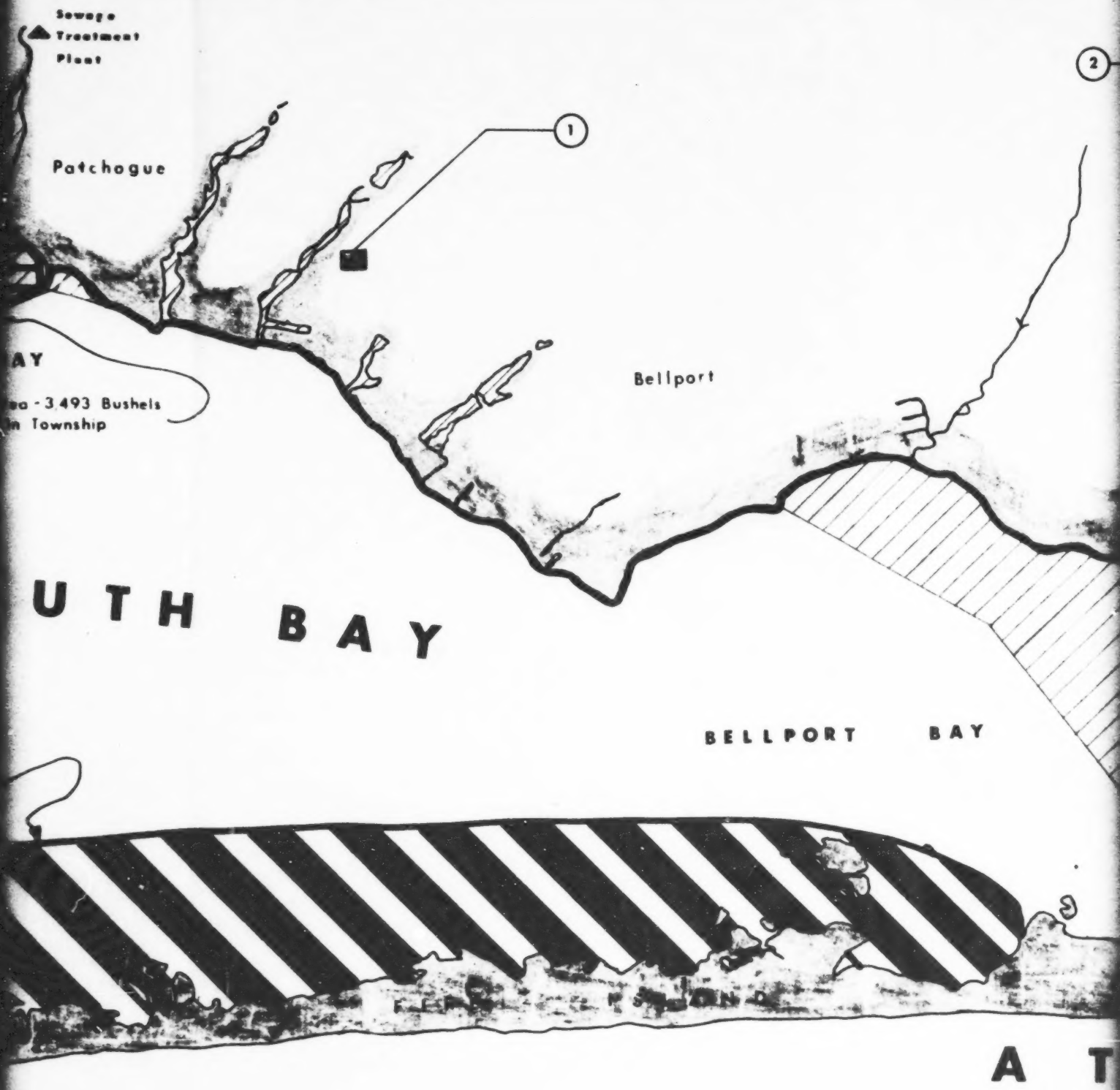
Losses in the other shellfish species -- and I am talking now about hard clams -- are even more difficult to assess. There are many indications that the major decline in the soft clam population coincided with the opening of Moriches Inlet itself. The Seatuck Cove restricted area, which you can see here on the chart, still has a population of soft clams, but intensive sampling has not been done to determine the current status of that population.

The oyster in modern times has not been an important product in the Moriches Bay or Great South Bay area covered in this conference. The major oyster production has come from areas located west of the "conference area"

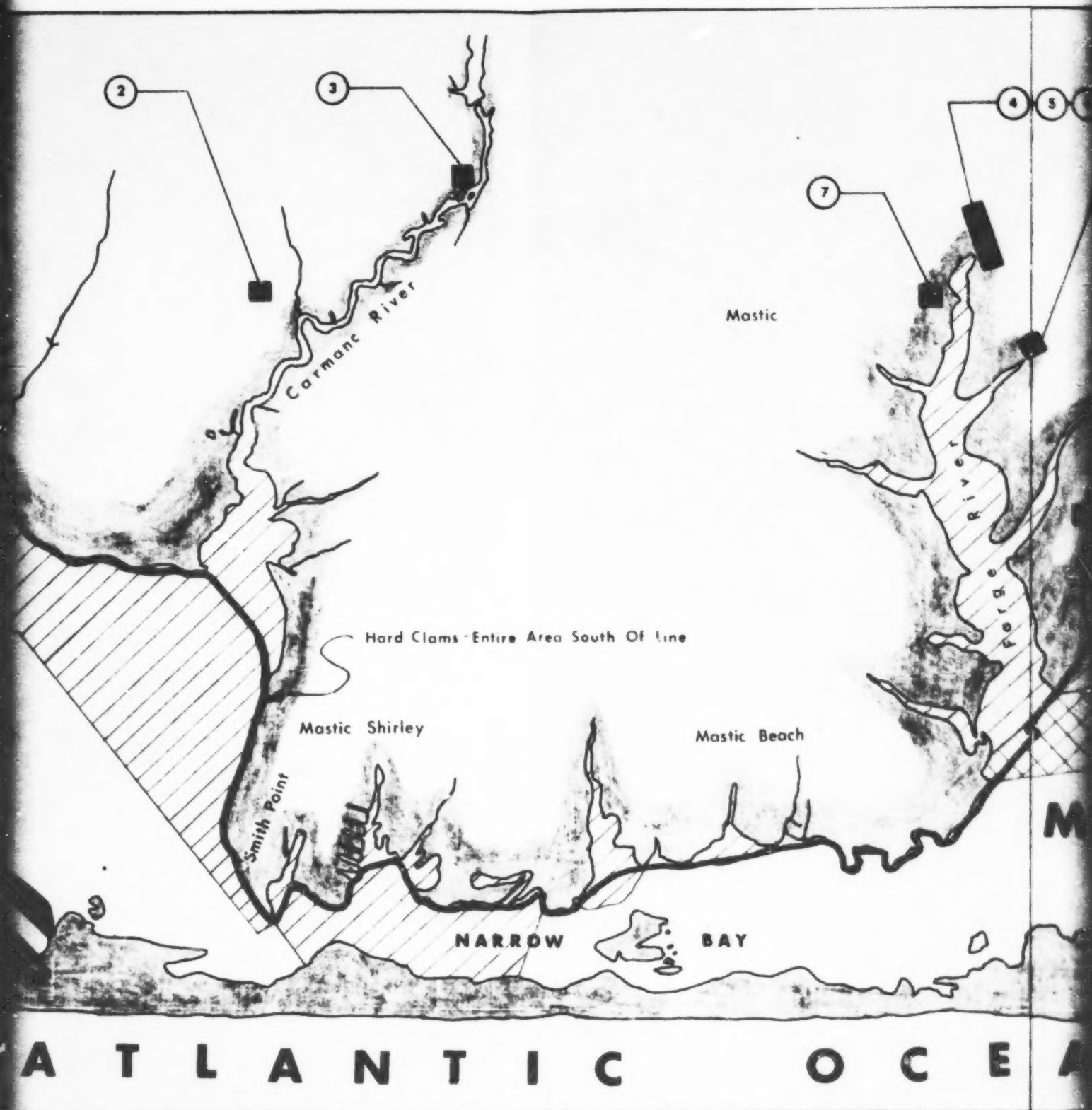


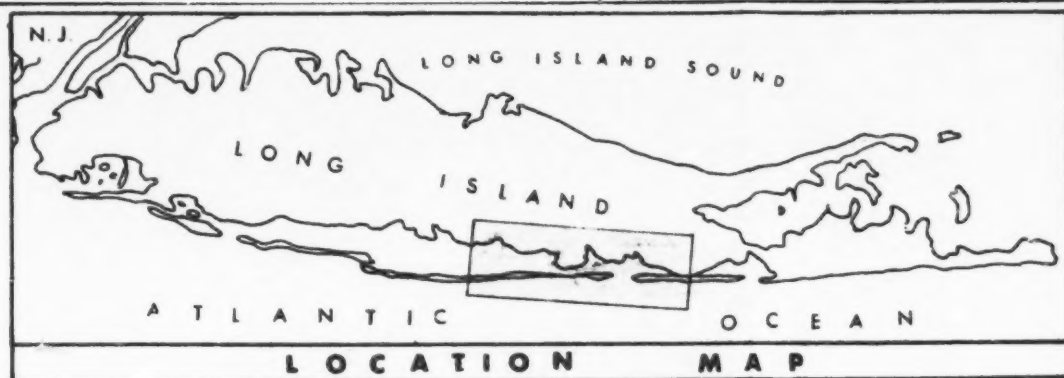
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Center Moriches

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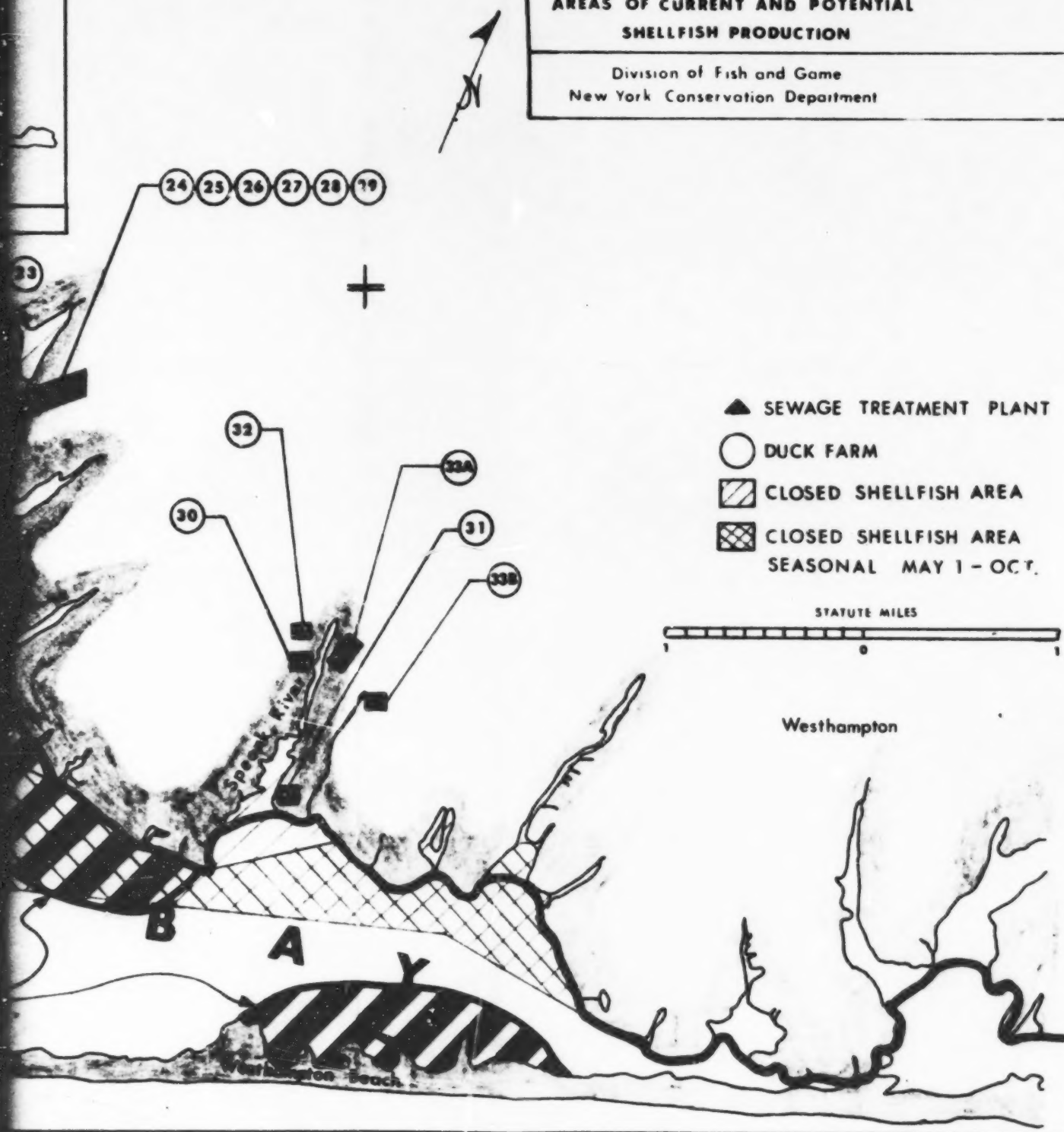
Soft Clams

Moriches

N

AREAS OF CURRENT AND POTENTIAL SHELLFISH PRODUCTION

Division of Fish and Game
New York Conservation Department



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in Great South Bay. However, the effects from duck farm pollution have been indirect in the oyster industry and involve excessive nutrients in the environment of the bay. During the 1950's, oysters in the western part of Great South Bay became unusable because of their poor condition.

Studies made by Woods Hole Oceanographic Institute personnel indicated excessive growths of certain micro-phytoplankton triggered by the presence of high concentrations of nitrates and phosphates emanating from the duck farms. While Great South Bay has not been a good area for collecting consistent sets of seed, it was once one of the finest growing and fattening areas for oysters in the United States, and possibly in the world. While the adverse nutrient balance was corrected to a large extent by the opening of Moriches Inlet, the nutrient imbalance remaining poses a threat to future rehabilitation of the oyster industry in Great South Bay, unless the input of these nutrients can be halted in the immediate future.

Most of the shellfish in Great South Bay, including oysters, hard clams and bay scallops, became very poor in late summer and fall of 1965. Oysters were not marketable, and scallops yielded only about two-thirds the normal amounts of meats. Hard clams continued to be marketable during that period, although the condition and appearance

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of the meats deteriorated substantially.

The decline in the physical condition of shellfish meats coincided again with an extensive phytoplankton bloom of long duration, which may have been triggered by meteorological conditions favorable for marine plant growth.

Over the last several years, Moriches Inlet has shoaled badly and the tidal exchange of sea water has been reduced. It is probable that the combination of high duck farm effluents, limited water exchange through the inlet, and ideal conditions of sunlight triggered the bloom which in turn clogged the gills of the shellfish. Unable to feed properly or to carry out their other essential life processes, they proceeded to become poor and thin, and a less desirable market product.

In fact, oysters were so poor as to be unmarketable during the entire 1965-66 season.

Again, it is difficult to assess losses or damages to the shellfish industry on a dollars and cents basis. In 1966, when comparable conditions have existed, no damaging blooms of micro-phytoplankton have occurred and shellfish have been of high quality. However, the threat of disaster is a continuing gnawing concern to those in the oyster business. Few oysters are being planted on leased ground in Great South Bay. While this inaction on the part of the

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oyster farmers is partly due to a shortage of seed existing generally throughout the Middle Atlantic and New England States, most oyster planters cannot afford to risk the potential losses from an inability to sell a product which is undesirable.

While the shellfish industry has been damaged seriously by pollution in the situation described here before, hard clam production overall from New York waters has increased steadily over the last ten years, and in 1965 reached almost 500,000 bushels.

I have a table, Mr. Chairman, showing the progression of production in New York.

Furthermore, hard clam production in the area covered by this conference has risen from 26,083 in 1959 to 62,413 bushels in 1965.

Mr. Chairman, I also have a table showing the catch per year for this area.

The New York State Pollution Control Board in the early 1950's took positive steps to tackle duck farm pollution of Moriches Bay and the waters of eastern Great South Bay by classifying these waters as SA -- i.e., suitable for the direct harvesting of shellfish for market purposes. Obviously, a substantial acreage does not meet the standards of water quality as indicated by the closed area charts

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shown in Exhibits A and B, and which are generally depicted on the map which is behind the conferees.

So long as effluents of high solid content and high coliform concentrations flow from the many duck farms into the creek and thus eventually into the bay, it will be necessary to retain the present closed areas and even to extend them. From a conservation and health standpoint, this is an intolerable condition which must not be allowed to continue. While transplanting of hard clams has been carried out in the Patchogue River -- and that is shown to be the most eastern part there -- in a cooperative program with the Town of Brookhaven, concentrations of shellfish still exist in certain parts of the closed areas under discussion. If clams were bootlegged by unscrupulous shellfishermen from these polluted areas and funneled into the market, such shellfish would pose a serious health hazard. An outbreak of disease from such a situation would have a catastrophic effect upon the entire shellfish industry in New York State, and possibly even the country. Policing is difficult and requires the concentrated efforts of our law enforcement personnel and the full cooperation and participation of the Suffolk County marine police. The obvious and direct approach to solve the problem is to remove the source of pollution. The New York State Health

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Department and the Water Resources Commission in the last three years have taken positive, aggressive steps to accomplish this purpose. Purposeful support and backing of the State's program, both legal and financial, by the Federal Government, will enable this abatement action to proceed at all possible speed.

However, when the solids have been removed and the resulting effluent chlorinated, the habitat for shellfish has not been restored in the creeks. Further action beyond this point is essential. First, the accumulated sludge, in some cases several feet thick, must be removed from the creeks and disposed of in such a manner that the organic load does not enter the estuarine system. Secondly, Moriches Inlet must be permanently stabilized and kept open in such a way as to provide maximum water exchange between the ocean and bay waters. Thirdly, we must have long-term planning for the multiple use of our marine water resources so that our commercial and recreational fisheries are in a healthy state, and at the same time provide for appropriate other uses, such as boating and boating facilities, swimming and other forms of marine recreation. The location of marinas and the discharge of sewage and waste from boats are matters of concern which should be evaluated in such planning.

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Each of these items requires expenditures of substantial sums of money to implement plans which will carry out the necessary action programs. Joint Federal-State and local government participation to accomplish these purposes, along with the pollution abatement action already initiated, should result in the fullest possible potential shellfish and recreational utilization of eastern Great South Bay and Moriches Bay.

We cannot urge too strongly the need for careful planning in developing the above points. In the last two years, several dredging projects to remove duck sludge from creeks off Moriches and Great South Bay have been carried out by the local agency. These have been desirable and commendable efforts. However, limited planning and improper disposal of the sludge have resulted in at least one case of destruction of valuable wetlands and, in another, of transport by currents of some of the sludge effluent back into the bay when discharged into the ocean near an inlet.

The entire matter of sewage sludge disposal at sea requires immediate evaluation and control, so that we can avoid creating in the adjacent sea the same conditions we are attempting to correct in our inshore bays, creeks and

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other estuaries.

SHELLFISH POTENTIAL IN MORICHES BAY AND EASTERN GREAT
SOUTH BAY

Assuming that duck farm pollution can and will be halted, we can expect an increase in shellfish production by utilizing the desirable shellfish grounds in the areas freed of contamination. Furthermore, important inshore areas would be open and available for recreational shellfishing. While this use is intangible in terms of total bushels or dollars income, recreational harvesting of clams is of major importance in many of our areas and offers great potential for development here.

Oyster farming may be revived in Great South Bay, once the constant threat of an unsalable crop is removed. Our technology for oyster culture is far advanced over that for other marine organisms. Creation of the appropriate habitat, which is reasonably stable, is a must before investment of new capital can be expected from the industry.

Table 1. Hard Clam Production In The Eastern Part of
Great South Bay, Moriches Bay and Shinnecock Bay
By Years From 1959 Through 1965.

Year	Eastern Great South Bay	Moriches and Shinnecock Bay	Total
	BusheIs	BusheIs	BusheIs
1959	7,000	19,083	26,083
1960	6,000	20,000	26,000
1961	8,200	21,325	29,525
1962	10,000	21,000	31,000
1963	14,750	25,150	39,900
1964	30,921	15,550	46,470
1965	43,530	18,883	62,413

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Table 2. Hard Clam Production In The State of New York
For The 10 Year Period From 1956 Through 1965.

Year	BusheIs
1956	297,934
1957	298,546
1958	311,413
1959	283,933
1960	324,033
1961	357,637
1962	403,018
1963	442,586
1964	450,175
1965	495,636

* * *

MR. STEIN: Thank you, Mr. Wallace.

Are there any comments, Mr. Metzler?

MR. METZLER: I like to watch a real professional at work, and we sure have been watching one here in the last few minutes.

Dave, that is a mighty fine statement.

Again, possibly because of my inadequate background in the shellfish business, though, I would like to ask two or three questions.

I think in general you almost answered some of these as we moved along. You mentioned that there can be increased production if pollution is abated and some additional circulation is provided in Moriches Bay, but then you went ahead to say this is pretty hard to estimate.

Can you put some sort of a dollar figure or a quantity figure on the increased amount of shellfish available annually?

MR. WALLACE: Well, I tried to arrive at some approximate figure for hard clams that currently exist in the restricted areas at the present time, and I think certainly we could assume immediately that if this coliform condition were improved, most of these shellfish would be immediately made available.

This would result, based on what was produced in the open water, in a harvestable crop of about a quarter of a million dollars immediately. This is only for hard clams.

It is extremely difficult to pinpoint the other species, first, because we don't have the history of an industry on soft clams in the restricted area itself; and,

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secondly, this subtle, indirect effect on the oyster business is an extremely hard figure to tackle. I hesitate really to try to put a dollars and cents figure on it.

That is the reason that in my statement I intended to be very cautious, because this is extremely difficult.

MR. METZLER: Well, I appreciate your wanting to not mislead us in this area and being cautious where it is necessary to be.

I still am a little puzzled, though, at what seems to me to be some discrepancy.

First, let me say that as conferee, I think we are all agreed that pollution has to be cleaned up, but I would not want us to lead people to expect that after it was cleaned up, the benefits were going to be much greater than they may turn out to be. I would rather that we would understate the case, rather than overstate it.

For that reason, I would like to come back, because it seems to me like there is maybe an order of magnitude of ten between your estimate of this value and the one that Mr. DeFalco gave earlier, in which he said it was a two and a half million dollar benefit. You placed it at about a quarter of a million.

MR. WALLACE: I think the two are compatible if we talk about the level in which we are placing this value.

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I suspect that Mr. DeFalco was trying to place this on the expanded value, which was used in the study of a county in Florida, where, I believe, the total value of the oyster industry was worth ten times what it actually yielded in terms of returns to the man actually producing it.

This would mean that taking my figures of a quarter of a million dollars and expanding them ten times, that is two and a half million dollars right there. So it is possible that this is the way Mr. DeFalco arrived at his figures.

I believe that a figure beyond that would be very questionable. In the first place, in the State of New York alone, for all of our waters, we are producing this year about 500,000 bushels of hard clams. If you take this at an average value of \$10 per bushel, that is an industry of \$5 million. I doubt very much -- in fact, I would seriously question whether the area under consideration here would produce to the producer a crop worth \$2.5 million.

MR. METZLER: One other question then:

I am impressed with the delicacy of this situation really, in which the concentration of sea water and the oxygen level and the nutrients and so forth play such an important part.

If the organic pollution from various sources were

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virtually eliminated and recirculation established in Moriches Bay, you don't see any major detriment which might occur to any part of the shellfish industry as a result of this?

MR. WALLACE: I do want to comment on this, because we are getting into, as you say, a very delicate and a critical balance here between what we have and what we might have. I am particularly concerned when I hear a discussion talking about the possibility of the construction of a new inlet in Great South Bay.

The reason is that over the last ten years, the productivity of hard clams in Great South Bay has increased steadily every year. In fact, last year, in 1965, in Great South Bay hard clam production reached approximately 300,000 bushels, which is more than it has been in modern times.

Any major change which would possibly change the ecology of Great South Bay -- certainly a major inlet in Fire Island, we will say, half-way between Moriches and the Fire Island inlet, would change the ecology -- this could have or might have a very serious effect on the total ecology, and thereby actually decrease the potential productivity of this area. So I think that here we have to approach this matter with a great deal of caution and be very certain of our basic factual material. This is the

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reason that I have strongly emphasized this cooperative long-term planning for the development of these multiple resources in the bay.

MR. METZLER: One final question, then:

In connection with this, is an answer that we can reasonably bank on possible by studies which might occur over a period of a few months, or is this the kind of a thing that we should go at cautiously, experimentally, and the answer will only be known over a period of years?

MR. WALLACE: Well, I think it is almost obvious that we cannot come up with all of the answers to the complex complete management of this area with a short-term study.

It seems to me we make some basic studies, we start to do some planning, and then we make further studies to implement the planning as we progress in trying to solve this overall problem.

MR. STEIN: Mr. Klashman?

MR. KLASHMAN: Mr. Wallace, how many acres of shellfish area do you estimate are open now where you produce, I think you said, 300,000 bushels?

MR. WALLACE: In Great South Bay?

MR. KLASHMAN: Yes, roughly.

MR. WALLACE: Yes. I would say about 30,000 acres.

MR. KLASHMAN: 30,000 acres, and, as I understand

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it, you don't produce the shellfish from the whole area?
You take about half of it?

MR. WALLACE: Well, I say that shellfish have to have a certain kind of bottom habitat in which they can live and grow. All bottom is not usable for the growth of shellfish.

MR. KLASHMAN: No, but of the 30,000 acres, you figure about 10 to 20 bushels per acre. Is that it?

MR. WALLACE: Well, 30,000 acres figures out for 300,000 about 10 bushels per acre.

MR. KLASHMAN: And how many thousand acres do you figure are closed? About 30,000?

MR. WALLACE: Well, in Great South Bay?

MR. KLASHMAN: Yes.

MR. WALLACE: Oh, no. Not nearly so.

MR. KLASHMAN: How many acres would you say?

MR. WALLACE: I would say approximately 6,000 or 7,000 acres.

MR. KLASHMAN: The figures that I understood that the project had obtained were that there was a larger area, as I understood it.

MR. WALLACE: Well, I am not so sure that we are talking about the same things.

MR. KLASHMAN: I am talking about this whole study

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area.

MR. WALLACE: You are talking about the whole study area from Patchogue River to Shinnecock?

MR. KLASHMAN: That is right.

MR. WALLACE: I can give you these figures exactly, and I would prefer to do this.

In Moriches and Bellport Bays at the present time there are in the restricted area 6,140 acres. In the open areas there are 8,475 acres.

Now, in arriving at my 22,500 bushels really, we estimated that 75 percent of this 6,000 acres was usable. The rest of it was in the creeks, where the salinity would be such that it would not support shellfish under any circumstances. This means that we now have 4,500 acres of usable shellfish area.

If we multiply this by 5 bushels per acre, which is the average production, from the 8,000 open acres over the past 5 years, then we arrive at a figure of 22,500 bushels.

MR. KLASHMAN: I'm sorry. I am lost. Where did the 30,000 acres come from?

MR. WALLACE: 30,000 acres is in Great South Bay.

I say, I think we got to talking about something else. I mentioned that in Great South Bay the production last year was about 300,000 bushels, but that is from

Patchogue west, which is the major producing area for shellfish in the world. I think there is nobody in the world who produces more than that particular one of hard clams, specifically. In that area there are about 30,000 acres.

I am sorry I confused you. I got to talking about something else.

MR. STEIN: I think you might do this for the technical session, or the executive session, and work these figures over with your people and theirs.

MR. KLASHMAN: I thought I understood these figures before we came in here, but I guess I don't.

MR. STEIN: This is always the case when you call an expert. This is what happens.

As far as I know, Dave through the years has been one of the top experts in the field.

In dealing with the magnitude of this, I think you may be interested in knowing we have had numerous complaints now from New Jersey. They are talking about an extensive geographic area -- much more extensive, it seems to me, an area than this, going from Atlantic City or the place just north of that, Brigantine, down to Wildwood and Cape May. The acreage they are talking about there is 5,000 acres. Now, this is, other than that, one of the more extensive areas, so I do think in terms of the shellfish

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industry, you are talking about the big leagues here in the acreage in this area.

MR. WALLACE: I did not mean to depreciate the importance of this area.

MR. STEIN: No. This is what I was trying to clarify and put into perspective. I would imagine that in a closed area such as you have here, you have an extensive shellfish-producing area, practically as large as any we have in this country. Certainly, on the West Coast you have to go over a much wider area of the sea coast to get the amount of acreage that you have here. I have just mentioned the New Jersey coast as a comparison.

I think the precise figures can be worked out, but I think in talking about shellfish areas, we are dealing with a major area here.

MR. WALLACE: There is one thing that partly seems to have been puzzling here, and we might as well get right down to the basics on this matter.

MR. STEIN: Yes.

MR. WALLACE: I am talking about the natural reproduction and setting, without any change on the part of man in terms of cultivation. This is quite a different figure from what you might expect if this area were being cultivated and intensively farmed, where you might get, instead of 5 or

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10 bushels per acre per year -- in an intensively farmed oyster ground, for example, it is entirely possible that you could get 100 bushels per acre per year, and this is done. However, in a natural area, where you are getting natural reproduction and harvesting a so-called wild crop, the average annual sustainable yield is substantially different.

MR. STEIN: That is right. I think we all understand that.

Are there any other questions?

MR. METZLER: No.

MR. STEIN: Off the record.

(Discussion off the record.)

MR. STEIN: Thank you very much.

MR. WALLACE: Thank you.

MR. METZLER: Thank you, Mr. Wallace.

We have two county officials to be called as our next witnesses. The first is Dr. George Leone, who is Commissioner of Health for Suffolk County. He will make his presentation at this time.

Dr. Leone.

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STATEMENT OF DR. GEORGE E. LEONE, COMMISSIONER,
SUFFOLK COUNTY DEPARTMENT OF HEALTH

DR. LEONE: Mr. Chairman, conferees of the
State and Federal governments, ladies and gentlemen:

I too was very much impressed by Dave Wallace's
presentation in which he told us about shellfish.

I am primarily concerned for people, and I learned
a lot about shellfish, but in this problem today I come to
the conclusion that the bay men's association and the duck
industry are here today, waiting with baited breath as to
what the solutions are going to be.

Now, the Suffolk County Department of Health,
although it was established in 1928 and was the second
county health district in the State of New York, at that
time had the situation where they were discharging human
sewage into the ground in one way, and it is being done the
same way today in Suffolk County, through cesspools and
septic tanks. The major problem today in Suffolk County is
the environmental pollution.

While we are talking about the Great South Bay
and its problems with the shellfish industry, the boating
industry, recreational, and so forth, we cannot discuss this

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without including the problem of groundwater pollution.

Today we have heard the responsibility is fixed on certain levels of government for the control of pollution of water, surface waters, and I, as a county health official, am very happy to have heard this early this morning, because in the years that I have been here the role of the county health department -- and this should be understood clearly -- has been one of inspection and reporting; that the enforcement has been at other levels of government.

In the midst of an exploding population and with the resultant boom in building, the by-products of man's actions are causing an unfavorable alteration of our environment.

We have heard so much today about the huge quantities of pollutants that are being discharged into the Great South Bay. In addition to that, we are confronted with the pollution of the air and of our lands, and these, of course, are all unwanted by-products of our activities.

I don't think we have to reiterate some of the things we heard today, but this strikes me as important, because we at the local level have watched this, have watched it with great frustration. The pollutants have defiled our rivers, our lakes, our streams, and even the

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oceanfronts, so that recreation, cleanliness and happiness of the people have been blighted.

The Suffolk County Health Department has been gravely concerned for many, many years with the public health hazards as they apply to people, engendered by our current methods of sewage disposal, primarily the cesspool and the septic tank. We have witnessed a constantly increasing deterioration of our groundwater quality. Not only are we concerned with the quality of the groundwater, but with the conservation of that water as a source, and the only source, of drinking water for our people. We have observed a similar quality decline in the surface and shellfish and recreational waters which surround our county.

Now, in an attempt -- and this was hard work -- in an attempt to halt the indiscriminate use of cesspools and septic tanks, which is still going on today, the Board of Health enacted local regulations late in 1964 that required the installation of communal sewage treatment and disposal systems for subdivisions of 100 homes or more.

We believe that is one of the outstanding actions taken by the Board of Health in Suffolk County. As a result of this, the creation of the Suffolk County Sewer Agency was brought about by the Board of Supervisors in 1965, toward meeting the problem of pollution.

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Now, in creating this agency, the county legislative body cited the various studies, reports and recommendations of the county and State health departments.

There are knowledgeable engineers in this room today, Mr. Herbert Davids, Mr. Jack Flynn and Mr. Bob Villa, who have been very, very close to these studies.

At least now we are charted on the right course of action, and, albeit, it will be a long time before we see the installation of sewer collection and disposal systems for the five western towns, we heard this morning predictions as to when construction will start.

These things still have to go to referendum, and when I heard Mr. Stein speak on the necessity for local action, that the Federal and State governments stand ready to help you, there is a problem -- a very difficult problem of taxes. We are not necessarily despairing, but that action and the timetables that were given to me this morning that I heard are not fast enough if we are going to do what somebody said to do this morning, and that is to stop the pollution at its source.

Now, in great fairness to the duck industry, it is not the only polluter of the Great South Bay. Human pollution through the seepage of the groundwater has its contribution too, and we cannot stop that by just issuing an order.

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This will require a great participation of the people, and the only thing that bothers me is where the money is coming from to support the great sewers that have to be developed for the County of Suffolk; but it should not preclude any community of a reasonable size to start today to set up a sewage collection treatment and disposal plant.

There is no bar against setting up these smaller sewage treatment and disposal plants, and we have in Suffolk County along the waters, particularly here in the south, some of the most sophisticated communities in the world. Yet, we are practicing the oldest way of disposing of human sewage, through the septic tanks and the cesspools. Of almost a million people in Suffolk County, only five percent of them are served by adequate sewage and disposal systems. The rest of them are discharging right into the groundwater.

As somebody mentioned this morning -- an outstanding report, by the way, by Paul DeFalco -- in the area of Center Moriches they are finding many, many wells which are already contaminated.

We are all aware of the housewife who grabbed a glass, turned on her spigot, and got suds in her glass of water.

I am concerned too about the pollution of the

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Great South Bay, but this cannot be resolved alone without paying attention to the disposal of human sewage in Suffolk County.

We are dangerously close to destroying this irreplaceable resource -- inadvertently, perhaps, but nonetheless as surely as if we sought deliberately to destroy a resource. If we started out and wanted to destroy, we couldn't do it any better than we are doing it now.

Water pollution is not singular to Suffolk County, and we know that in the country, not only in New York State, the communities are being blighted by these polluted waters. Pollution of the environment has occurred as the inevitable aftermath of our increasing population and the attendant by-products of human activity.

When they talk about increasing population in Suffolk County, we have 10,000 babies born a year. That is a substantial increase.

While enjoying substantial immunity from the waters to the west, Nassau County, New York, we have not escaped the metropolitan areas' population pressures. Seeking to escape the tensions of the cities -- and, you know, we have seen it together -- the people have spilled over into Suffolk County at an unbelievable rate. Since 1955, as was mentioned several times before, the population has increased

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from 400,000 to 900,000, at an average rate of about 50,000 a year. Somebody predicted this morning that we will have two million people by 1980.

We are keenly aware in the Health Department of the pollution potential engendered by this skyrocketing population. However, when demands for planning and paying for communal need for educational facilities -- we are building schools like mad, and we have to -- for police and fire protection and transportation, we come to the conclusion that there is little interest or money left for items as mundane as waste water disposal, refuse disposal, air pollution, and the other sordid end products of our actively expanding new communities.

Prevention of environmental pollution is then carried out as a sacrifice. The necessary money must be obtained from an understanding, knowledgeable, but reluctant taxpayer, and we are confronted, I feel certain, in Suffolk County, with one of the most profound educational programs that we have ever had before if we are going to get county-wide sewers.

In the absence of existing municipal waste water disposal facilities, we have relied heavily upon the interim devices, such as septic tanks and cesspools. With less than 5 percent of the population, as I said before, served

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by sewers, we are viewing too soon and too fast the deteriorating effect of these inefficient and temporary waste disposal devices upon our water resources.

Nor are we comforted when detailed research into groundwater pollution reveals that the groundwater resources have weak protective properties and poor recuperative powers.

Surveys and studies carried out by responsible agencies reveal a steady increase in the water areas unacceptable for bathing and the taking of shellfish, as we have heard today. The blight of waters extends eastward hand in hand with the population spread, and its attendant pollutional end products.

There is no reason why, with intelligent planning, this should come about, because we should stay ahead of pollution and not behind it.

Old problems plague us too in this often-studied, but still unresolved, duck farm pollution. The duck farm wastes are the greatest surface water pollution problem in Suffolk County. Its immensity is easily understood when we are told that the discharge into Moriches Bay alone is equal to the sewage from the City of Rochester.

I don't know how they came up with this. (Laughter.)

The waters subjected to the duck industry's waste have become esthetically and bacteriologically unfit,

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affecting their use for both bathing and taking of shellfish. Current research suggests that even if we were to effectively halt all waste discharges, and we are not near that now, the amount of nutrients already present in the bottom sediments will cause the problem to linger for many years.

Persistent pressures for pollution control have been exerted against the duck industry since 1949. Viewing current conditions, we can only conclude that success, if any, has been slight. I don't think that anyone will disagree with me here.

Now, viewed from a distance, control of duck farm wastes is a simple problem of measuring the waste, designing, constructing and operating treatment devices. For those polluters who fail to comply, enforcement is seemingly straightforward.

Experience with the problem has indicated to us that the elusiveness of its solution is a simple matter of economics. The degree and type of treatment required presents insurmountable economic barriers to the industry, a large part of which is already having difficulty.

If treatment is not provided, then we must be provided with sound, swift and effective enforcement procedures. It must be enforcement with a stomach strong

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enough to face the dissolution of an industry which is traditional to the community. Practices acceptable in a rural community may be intolerable in an urban community.

I must state for the record that we are not opposed to the duck industry. We like to see it go hand in hand with the shellfish industry. But my only concern is that unless this timetable becomes realistic and does not become a device for more intolerable delays, as I have personally witnessed myself in the county, then I fear that the solution is not close at hand.

The fact that we have not met with singular success in the area of pollution control does not mean that we are unmindful of our problems, or that progress is not being made. The following measures have been adopted to cope with the advance of pollution upon our water resources. You have heard them all this morning.

The first is the comprehensive sewerage plan, where the State gave us \$660,000.

Next is the negotiations now for a comprehensive sewerage plan for the five eastern towns, also sponsored by the New York State Health Department grant.

Third is a comprehensive water supply for Suffolk County will be carried out through a \$340,000 grant from the New York State Health Department. The County of Suffolk,

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the people of Suffolk, are contributing \$450,000 to a test well program to be carried out concurrently with the comprehensive water plan.

The Suffolk County Board of Supervisors formed the Suffolk County Sewer Agency, and this agency is currently carrying out studies leading to this referendum that we talked about for the two sewerage districts.

The County of Suffolk and the Duck Co-op sponsored and completed research on treatment of duck wastes, and we are moving forward towards the construction of a pilot plant, as we heard today. In addition, a consultant engineer, Mr. Cosulich, has been instructed to prepare a comprehensive plan for the treatment of duck wastes.

There is little doubt that we have made a belated start, and we face decades of high costs and hard work if we wish to perpetuate the fashion of clean water to our future residents.

Now, I am greatly encouraged today by the presence of the Federal and State people, because by their presence they focus attention to the problem, and by their mere presence I think it will probably be the beginning of an aggressive attack on the problem.

I again must state that public education is going to be necessary, and there has been no period in which the

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public has been more psychologically determined to make clean waters as a permanent way of American life. However, the proof of the pudding will be when it comes time to put up the money. The educational procedures must be intensified and continued in order that the public may pursue their determination in a knowledgeable fashion.

I must confess here that neither the County Health Department nor any other departments that I know of have been so very successful in bringing this matter to the attention of the people that will arouse them to take certain actions that will prevent things like this in the future.

Now, advanced technology: We have heard a lot of experts here today, scientific experts, people who are very knowledgeable, but with all the knowledge that they present and they put in the record, it will be necessary for the decision-makers, the administrators, to put this knowledge to work in order that we can take advantage of it.

Our daily lives have been enriched with the products provided by the activities of this advanced technology. With the advances have come new pollutional problems in the form of exotic synthetic organics, such as detergents, pesticides, herbicides, and insecticides. Our treatment techniques have lagged behind the production techniques.

We must vastly expand our research into the waste

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treatment procedures, consistent with our advanced technology. Even this morning, when somebody said that we can get the phosphates and the nitrates, it was not quite certain that this can be done easily. This still needs considerable testing, I suppose. This is a task, and quite a task, which must be met by cooperative programs between the government and industry, and it is good to see that industry is here this morning, sitting side by side with government at all levels, trying to seek solution.

One area that has not been mentioned is that the educational people have responsibilities here. The schools of engineering and science must also furnish us with technologists to design and operate advanced waste control systems.

Enforcement: Let me say just one word, and I will conclude.

Basic to any enforcement program is the establishment of realistic and scientifically sound water quality standards. Our current enforcement responsibilities are spread to too many agencies, and the legal procedures are cumbersome, complicated and slow. Maybe it will be different after today.

Duck farms in Suffolk County have been illegally polluting Suffolk waters for fifteen and twenty years,

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while the legal machinery -- and this is what I observed -- while the legal machinery painfully clanks to an uncertain conclusion. More enforcement powers must be delegated to the local county agencies, who must occupy the site of the offenses, and are subjected to the intense and immediate pressures of the offended.

I can bear witness that not only in the pollution problem, but with the many women's clubs and the many complaints about the flies and odors -- I learned only within the last year that odors can become a public health nuisance, and if anybody doesn't believe that, you can be taken to court for it. We have had that shown to us very clearly, that odors can become public nuisances, and the courts will find for the people who are complaining.

Now, money. I think the last thing is money.

After we heard Paul DeFalco's presentation this morning, I mentioned to my engineer that I think we could all go home if the Federal and the State people came up with the money. That is all we need. But it is not that easy, I am quite sure.

I know that clean water will cost us money. Dirty water will cost us more, much more than we can possibly afford. The current sources of Federal and State grants and community funds are necessary. Increased grant moneys

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must be provided for those communities unable to meet their commitments.

I want to close with one observation.

First, and I think the courts have decided this recently up around Erie County, no one has a right to pollute. No one has a right to pollute. Notwithstanding the delinquency probably of an agency who gave somebody permission to discharge polluted effluent into the waters, notwithstanding that, the court ruled no one has a right to pollute.

This was a refreshing decision that I hope will be taken to the heart of anyone who feels that by some legal way he has a right to pollute.

The County of Suffolk has made great strides, as has been said here today. I think the only trouble with those of us who have been close to it is that we have become impatient. We feel the burden; we feel the frustrations; we have become despairing as to whether anyone is going to do anything about it, and I hope that out of this conference will come some guiding influence, some coordinated effort. I hate the word "coordinated" always, because after you add that word, somebody says you create a new job for somebody, but there needs to be coordination in Suffolk County on this problem.

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I have attended many, many meetings, and every time you attend a meeting you walk out of that meeting with the idea of frustration that, "I wonder if anything is going to come out of it." I know I see some people around here who have attended some of these meetings with me, but I think the time has come, with the help of the highest level of government and with the help of the most powerful level of government, the people, where I think you ought to be able to lick this to the advantage of the shellfish industry, the duck industry, and the people of Suffolk County.

Thank you very much.

MR. STEIN: Thank you, Dr. Leone, for a very forceful and comprehensive statement.

Before I turn this over to questions and comments, I might indicate that while we appreciate being here to focus public attention on this, I should call attention to the fact that this is a Federal enforcement case, and the State has issued an order.

I think those of you through the country who have watched, for the past twenty years, Dwight Metzler and Bob Hennigan and Klashman and myself, and know how we operate, know that we just don't come to focus public attention, though that is part of our duty. We are here to have clean

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water.

The State has started its mechanism. This is the first stage in the Federal enforcement mechanism. We move inexorably. We have with Dwight in the past, when he had been in Kansas, moved with him, side by side, in cleaning up pollution problems. We expect to do this here. Any time the State wants to call on us, we are ready.

Now, don't expect us to go home and think you have just had another meeting, because again I want to call your attention to the fact that this is the first stage in a Federal enforcement case, called by a Cabinet Officer.

The Congress did not do that lightly. They did not want anyone else to have the power to call one of these conferences except a United States Cabinet Officer, and he did it in this case, and we are on our way.

Mr. Metzler?

MR. METZLER: You were talking to the point that I was interested in, and I would like to ask Dr. Leone whether he still thinks the legal procedures are complicated and slow, and at what level of government he would talk about they may have been in the past; but I would want to give the impression that I believe at both the State and the Federal levels, we have been on the move.

Let me give you a quick example in New York State

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that is relatively fresh in my mind. In one of the State's largest cities, within a period of about a week, their attorneys advised a rather rambunctious city council that they probably had no choice but to comply with an order, and that city, I might say, has now enthusiastically adopted -- and this happened just within the last few weeks -- a complete about-face concerning its pollution problems. It is like a new convert in church. They are among the most enthusiastic now.

So, if you have the feeling, Dr. Leone, that this is now true, still true, then I would like some particulars, so that I can either be better informed, or so that I can change your opinion.

MR. STEIN: Mr. Klashman?

MR. KLASHMAN: I have no comments.

MR. STEIN: You know, in order to get possibly another convert, you don't mind if I give another example?

We had one of these conferences in another part of New York State. At that conference it developed that one community had been under orders for quite a while. They had the same kind of dismal litany that we had here. This community has been under orders since 1908 from New York State. They thought the same thing was going to happen, that the Attorney General of New York State -- we turn this

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over to the State after we leave, because this really is a State and local matter -- we try to help; but they thought that the Attorney General of the State would forget it.

When we left the Attorney General put four lawyers on the case. The man personally came up and served the city with the order. The order is in effect. They have hired engineers, and, as far as I know, they have complied.

In other words, I think we are moving. I think the State of New York is moving. I say this because I think we have very close Federal-State cooperation, and we have the advantage of having people who have worked together for years, who know each other and respect each other and can move forward, and I think we are going to get action.

Let me just say this for all the polluters and all the people here. As far as New York State and we are concerned, we don't have to deal with the slow grinding bureaucracy of sending memos and approvals. One word on the telephone from Dwight Metzler to us and a word from us in agreement, and we have the agreement and the papers follow later. We just follow through, and this is what we intend to do here.

MR. METZLER: I just want to thank Dr. Leone for that statement.

Do you want to respond, Dr. Leone?

DR. LEONE: No. I am aware of that village upstate, because I lived there, and I am very much aware that in 1908 the Department of Health cited them and charged them \$50 a day, but the sovereign State of New York, until 1966, still were not able to stop that village from polluting the waters of Lake Erie.

MR. METZLER: May I say that I think you can all see now why Suffolk County has one of the really outstanding health departments in the State? It is also independent and stands on its own feet very well. With this kind of leadership, we expect to see some more great things out here.

We have one other county official. Is Mr. Kammerer here, the Commissioner of the Suffolk County Department of Public Works?

(No response.)

MR. METZLER: I see a shaking of heads. All right.

There are two more witnesses that I promised for sure to get on this afternoon, and at that point I would propose to read over the witness list and see if there are any others on the list who cannot come back and start with us tomorrow morning.

Is that agreeable with you, Mr. Chairman?

MR. STEIN: Yes. If we proceed, we probably are going to have to give the reporter a slight rest after your next two witnesses.

MR. METZLER: I would certainly agree to that.

Our next witness is Mr. Stout.

Mr. Stout, I am sorry, I do not have your first name. Would you give your name and your association for the record, please?

STATEMENT OF AUGUST STOUT, JR., CHAIRMAN,
MORICHES INLET STABILIZATION COMMITTEE

MR. STOUT: Thank you.

My name is August Stout, Jr., Chairman of the Moriches Inlet Stabilization Committee.

Mr. Chairman, Federal and State conferees:

I would like to thank you for your interest in our area down here.

Our organization consists of approximately 30 civic organizations that have been dedicated to the sole purpose of stabilizing and maintaining Moriches Inlet.

In listening to the various speakers today, I was surprised that so many people referred to Moriches Inlet and what it can do, what it should do for our polluted waterways here in Moriches Bay and Great South Bay; but I sure don't

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know where these people were or are before the Appropriations Committee in Washington or the Bureau of the Budget in Washington. I hope that these minutes of this proceeding will be available to the Federal level, the Bureau of the Budget. They keep taking the item out to stabilize the inlet, and the Appropriations Committee does not see fit to add too much to this project that we have been interested in for as far back as 1945.

This emphasis on Moriches Inlet is based on the fact that the flushing action, the stabilizing of the inlet, would accomplish one of the principal means of cleansing and ridding the bay of pollution.

As for pollution of Moriches and Great South Bays, it is my opinion that too much emphasis has been placed on the duck farms as a source of bay pollution.

I feel that there are other sources, increasing sources of pollution that are worthy of your committee's serious consideration. These other sources that merit your investigation include the vast development of real estate along our hundreds of miles of shore front, which includes the bays, the creeks and the rivers, with cesspools which do not adequately serve their purpose; and the increase in pleasure boating and the lack of control over sanitary facilities of these crafts; and the draining of street water

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runoff into our bays, rivers and creeks from town, county and State highways.

As for the Moriches Inlet, there is one bright spot on the horizon, according to the word received this past week from Congressman Otis G. Pike, that the Appropriations Committee in Washington earmarked \$100,000 which has been requested by the Army Engineers to get this project off the ground.

We of the Moriches Inlet Stabilization Committee are very happy and enthused that somebody is trying to get the project off the ground, because we know of its importance over the years, going back to 1945, when we tried to appear before Army Engineer hearings to get an appropriation even to look at Moriches and Shinnecock Inlets; later on to get the approval of the Congress and the Senate; and, finally, in 1960, to have the bill approved by President Eisenhower as an approved project. However, of course, we have had the problem -- and many of our public officials in Washington have had this problem -- of having this project funded.

Once again, I say that these minutes of this meeting, I hope, will be available to them, so that they can back them up on getting the project off the ground.

Our committee, the Moriches Inlet Stabilization

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Committee, realizes Uncle Sam has a tremendous equity in both these bays in the establishing of the Fire Island National Seashore, and we hope that your committee's work will be the answer to protecting this investment, rather than letting the National Seashore become a public pumping ground via our bays.

Thank you very much, sir.

MR. STEIN: Thank you.

Are there any comments or questions?

MR. METZLER: I am interested, sir, in your experience with getting some assistance on this.

I am a little dismayed at the twenty years that you indicate it has taken to get just through a Corps of Engineers study.

Would you like to give me a little further information about this point?

MR. STOUT: Maybe I didn't make myself clear.

The project was started back in 1945 with requests to the Federal Government for an appropriation to survey Moriches Inlet, and it took from 1945 until 1960, in the Rivers and Harbors Act, when it was approved.

We have engineered and re-engineered this inlet a thousand times. For the money that has been spent on engineering, we could have had it stabilized.

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Our State, county and town have put in over \$3 million into this project. Since it has been an approved project and has not been funded, the Army Engineers have included it in their various budgets over the years -- and I say over the years, since 1960. It always seems to be taken out of the Army Engineers' budget, the District Army Engineers' budget, if I have that correct, through the Bureau of the Budget. They have something to do it. I am not too clear on that part. I get mixed up in Washington, sir, but they seem to take it out because we have need for money some place else.

However, one of the things that our committee has been working on for all these years is the fact that this has a vital reaction in this whole area of flushing out our bays. I don't think anybody is going to question that, and yet we can't convince Uncle Sam in Washington how important it is.

We have been there many times. I have personally been before the Appropriations Committee and the Public Works Committee, and this is where it stands.

I have tried to clear up the question. We have not been twenty years getting the money. It is actually six years, and they tell me the average project takes ten years to be funded.

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Now, that is all I know.

MR. METZLER: Mr. Chairman, may we continue this discussion off the record?

MR. STEIN: Surely.

MR. METZLER: Not because what I am saying has any need to be off the record.

MR. STEIN: Surely.

(Discussion off the record.)

MR. STEIN: All right. Let's get back on the record.

MR. STOUT: Thank you very much for your help.

MR. METZLER: We would be glad to work with you, Mr. Stout, in any way that we can on this. I am sorry we have taken this much of your time.

MR. STOUT: We appreciate the free advice. I can tell you that. Our committee will be very happy, because we have lived with it for a long time, as you can see.

That is the whole story.

MR. METZLER: Before calling the next witness for New York State, would you permit me to read the names of the witness list that I have so far. Will any of you make known now if you are unable to return tomorrow morning, probably about nine o'clock, it looks like.

MR. STEIN: All right.

MR. METZLER: Mrs. James Sherard, can you come back?

MRS. SHERARD: Yes.

MR. METZLER: Hugh Mercer, of the Bluepoint Company?

MR. MERCER: I shall return tomorrow morning.

MR. METZLER: Thank you, sir.

Maurice Barbash, Chairman of the Citizens' Committee?

MR. BARBASH: Tomorrow.

MR. METZLER: Edwin Furman, President of the Southampton Town Baymen's Association, Inc.?

MR. FURMAN: I will come back.

MR. METZLER: Emanuel Licht, Feather Marketing Cooperative Association?

MR. LICHT: Tomorrow morning.

MR. METZLER: Dr. Vanderborgh of the Oyster Institute of North America?

DR. VANDERBORGH: I can be back tomorrow.

MR. METZLER: Thank you, sir.

Adrian Hoek of the Great South Bay Baymen's Association?

MR. HOEK: I will return tomorrow.

MR. METZLER: Thank you, sir.

Nelson Houck, General Manager of the Long Island Duck Farmers Cooperative, Inc.?

A VOICE: He will be here.

MR. METZLER: He will be here tomorrow?

A VOICE: Yes.

MR. METZLER: Well, then that brings us, Mr. Chairman, to what perhaps might be our last witness for today.

Are there any of you who wanted to speak who have not given me their name, who would want to speak this afternoon?

(No response.)

MR. METZLER: Well, let's finish with our last witness, and in many ways it is very appropriate.

Mrs. Wallace, Executive Director of the Oyster Institute of North America.

STATEMENT OF MRS. ELIZABETH M. WALLACE,
DIRECTOR, OYSTER INSTITUTE OF NORTH AMERICA

MRS. WALLACE: Chairman Stein, honorable conferees, ladies and gentlemen:

I am Elizabeth Wallace, Director of the Oyster Institute of North America, and, as such, represent the molluscan industry of three species of oysters and three species of clams of our nation.

This first Federal Water Pollution Control

E. M. Wallace

Enforcement Conference in relation to shellfish makes P.L. 234 a reality to the molluscan industry. This conference became a goal for every shellfisherman in our nation as a result of the molluscan hearings of October 2nd and 3rd, 1963, before the House Subcommittee on Fisheries and Wildlife Conservation.

The damage of the duck farm pollution to the baymen and shellfish farmers of New York has been recognized for at least fifteen years. However, as testimony after testimony in the 1963 hearings pinpointed pollution as the major factor in the ever-dwindling production of oysters and clams in our nation, it became clear to everyone that the abatement and control of domestic and industrial pollutants is imperative.

Not to be reproduced, but for the record, here is a transcript of those hearings.

MR. STEIN: Thank you. That will be made an exhibit at this point. Since this is a public document, it will be available in all our offices for inspection.

MRS. WALLACE: Thank you, Mr. Stein.

MR. STEIN: As a matter of fact, copies of this can be made available on request.

MRS. WALLACE: That's right.

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(The document referred to will be contained in the files of the Department as an exhibit.)

MRS. WALLACE: Our plight recently coincided with a national grass roots concern as citizens began to fight for their heritage -- clean water. The great drought in the East underscored the need and forced all of us to become aware of the ominous dearth of potable water. In a sense, the production and marketability of shellfish became an indicator of acceptable water quality. Under the leadership and skills of Edmund S. Muskie of Maine in the Senate and Representative John Blatnik in the House, the Federal Water Quality Act of 1965 was enacted. Those of you who are now responsible for reclaiming our waterways and estuaries have our unqualified support and encouragement, and a mandate from the Nation.

While the area of 6,100 acres under consideration at this conference is small in comparison to the two million acres of shellfish grounds that are either closed or inactive, duck farm pollution is a highly sensitive issue and critical to the welfare of the shellfisheries in New York. Attention focused on this issue will be precedent-setting to other polluters.

The Survey Report of 1966 for Moriches Bay made

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by the New York Conservation Department is an excellent current analysis of the area we are considering. However, each evaluation of the water quality of Forge River, Harts Cove, Seatuck Cove and Tuthill Cove concludes dismally, "Data collected indicates the entire (specified) area should remain closed for the taking of shellfish for market purposes."

We could present a MacNamara-type accounting of the losses represented by duck pollution, if that were necessary -- and for every other blighted shellfish-producing area in the 21 marine States. However, a far greater justification is apparent and inescapable. To destroy an environment is wrong. To deprive citizens of their basic rights is wrong. There is no other alternative but to restore the environment to its multiple beneficial uses.

While it may seem naive to challenge an industrial giant to be responsible for detrimental effluents, it has proved more difficult to confront a smaller industry. A national corporation must maintain a good image.

For twenty years the duck farmers have frustrated New York's local and State officials by taking advantage of the inadequacies in the New York law. At hearings held in the County Center at Riverhead, spokesmen for the duck

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industry successfully pleaded ignorance and/or poverty as reasons for disregarding the sanitary regulations. One farmer at one hearing -- and I sat through a number of them -- who threw himself on the mercy of the hearing officer because he could manage neither the waste disposal problems nor the actions of his employees, inadvertently referred to his 40-foot yacht in its ability to navigate the sludge deposits of Forge River. Later in the same week this same person was named by Newsday as the recipient of an award from Cornell University for his outstanding formula of the exact food intake needed for the total life of each individual duck.

On September 5th, among the compilation of Presidential documents, was the interdepartmental agreement concerning consultation between the Department of Health, Education, and Welfare and the Department of the Interior on the health aspects of water pollution control. We submit this also as part of our testimony to document the need for specific water quality standards to guarantee the acceptance of our shellfish products.

MR. STEIN: This will be submitted as part of the record. This is also a public document available for inspection and is available on request.

E. M. Wallace

(The document referred to will be
contained in the files of the
Department as an exhibit.)

MRS. WALLACE: We also wish to submit the National
Shellfish Register of 1966 to document the need and the
scope for future shellfish conferences.

Perhaps just the specific pages of the total can
be incorporated, Mr. Stein.

MR. STEIN: We can include this in the record.
This is not that long. This will appear in the record, as
if read, without objection.

MRS. WALLACE: Thank you.

(The document referred to is as follows:)

NATIONAL REGISTER OF SHELLFISH PRODUCTION AREAS

LEROY S. HOUSER AND FRANK J. SILVA

U.S. PUBLIC HEALTH SERVICE

1798

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

E. M. Wallace

Division of Environmental Engineering and
Food Production
Shellfish Sanitation Branch
1966

For sale by the Superintendent of Documents, U. S. Government
Printing Office, Washington, D. C. 20402 - Price 15 cents

FOREWORD

The National Shellfish Sanitation Program is a cooperative State-Federal-Industry effort designed to (1) assure to the consuming public the safety of shellfish (oysters, clams, and mussels) shipped in interstate commerce and (2) provide for continuing use of a valuable natural resource. The Program is concerned with the sanitary aspects of shellfish production, harvesting, processing, and distribution. In recent years it has become increasingly evident that there is a need for reliable statistics on the size, sanitary classification, and location of the Nation's shellfish growing areas. The absence of such data makes program planning and administration difficult and has obscured trends in area availability and sanitary classification.

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The information contained in this brief tabulation could not have been gathered without the wholehearted cooperation of State health and conservation agencies who gave so freely of staff time in collecting the information presented. We specifically acknowledge the cooperation of these agencies in gathering the information presented in the following pages.

Eugene T. Jensen, Chief
Shellfish Sanitation Branch
Division of Environmental Engineering
and Food Protection
Public Health Service

DEFINITIONS

- | | |
|------------------|---|
| INTERSTATE AREAS | - Waters receiving run-off from an interstate (or international) watershed |
| INTRASTATE AREAS | - Waters not receiving run-off from an interstate watershed (or international). |
| ACTIVE AREAS | - Waters currently growing shellfish. |

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INACTIVE AREAS

- Waters not currently growing shellfish but which are biologically capable of producing shellfish.

AREAS FULLY APPROVED - Waters which have been approved by the State control agencies for growing and/or harvesting of shellfish for direct marketing.

AREAS CONDITIONALLY

APPROVED

- Waters approved by the State control agencies for growing and/or harvesting of shellfish; approval being contingent upon the attainment of an established performance standard by sewage treatment works discharging effluent, directly or indirectly, to the area.

CLOSED AREAS

- Waters prohibited by the State control agencies for harvesting of shellfish.

NATIONAL REGISTER OF SHELLFISH PRODUCTION AREAS

The House of Representatives Subcommittee on
Fisheries and Wildlife Conservation of the Committee on

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Merchant Marine and Fisheries held hearings on Molluscan Shellfish on October 2 and 3, 1963, at which time the problems of the shellfish industry were discussed at some length. One of the points brought out during these hearings was that there were no figures readily available on a national basis as to the acreages of shellfish growing areas classified as approved, conditionally approved, or closed.

In a subsequent report to the Subcommittee, the Secretary of the Department of Health, Education, and Welfare, noted that administration of the National Shellfish Sanitation Program had been hindered by incomplete information on the extent of shellfish production areas; the extent of areas lost to shellfish production due to pollution or toxicity; and on quality trends in areas available for harvesting or culture. The report also pointed out that if a national effort was to be made to preserve the shellfish industry, it would be necessary that the present Program be expanded to provide this information on a continuing basis. The report indicated that this deficiency would be corrected through establishment of a National Register of Shellfish Production Areas.

As a result of the Molluscan Hearings and the subsequent report of the Secretary of the Department of Health, Education, and Welfare, the Shellfish Sanitation

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Branch in the latter part of 1963 solicited the individual coastal States, through the Public Health Service regional offices, for available information as to the number and size of areas classified by the States as fully approved, conditionally approved, or closed. This information was published as a single table in September 1964, under the title "National Register of Shellfish Production Areas" and was distributed to interested persons and agencies.

Tables I-VI represent data available through April 30, 1966, from all coastal States, exclusive of Hawaii, Alaska, Puerto Rico, the Virgin Islands, and the Trust Territories. The data covers the following points by State and by Region; number, size and classification of areas; location of areas by interstate and intrastate waters, and by active and inactive areas. Definitions of the various terms used in the tables are given on page iii.

Periodic revisions are planned to provide a constant inventory of shellfish production areas as an aid in determining gain or loss of areas through progress in water quality management. In addition, it is expected that the system will be expanded and refined to provide (1) information on levels of sanitary quality which prevail in these areas and (2) information on factors which determine water quality.

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The acreages given in the Tables have been rounded to the nearest 100 acres, where appropriate. Acreage data reflects water masses and does not presume uniform distribution or magnitude of shellfish resources in such areas.

National Register of Shellfish Growing Areas
Table I

Region	State	Interstate Active Areas									
		Approved				Total No. Approved				Closed	
		Fully		Conditionally		Acres		Acres		Acres	
		Acres	Areas	Acres	Areas	Acres	Areas	Acres	Areas	Acres	Areas
I	Maine	0	0	0	0	0	0	0	0	2,500	6
	New Hampshire	0	0	0	0	0	0	0	0	--	--
	Massachusetts	500	1	3,000	2	3,500	3	2,000	3	5,500	6
	Rhode Island	60,900	1	11,600	6	72,500	7	18,900	20	91,400	27
	Connecticut	100	1	1,300	1	1,400	2	6,400	4	7,800	6
	Total	61,500	3	15,900	9	77,400	12	29,800	33	107,200	45
II	New York	13,500	1	0	0	13,500	1	24,500	2	38,000	3
	New Jersey	416,000	1	3,000	1	419,000	2	28,000	1	447,000	3
	Delaware	194,900	1	0	0	194,900	1	1,100	1	196,000	2
	Total	624,400	3	3,000	1	627,400	4	53,600	4	681,000	5
III	Maryland	803,000	6	0	0	803,000	6	17,900	5	820,900	11
	Virginia	822,600	3	0	0	822,600	3	3,400	3	826,000	6
	North Carolina	927,700	5	0	0	927,700	5	45,200	5	972,900	10
	Total	2,558,300	14	0	0	2,558,300	14	66,500	13	2,624,800	27
IV	South Carolina	1,000	1	0	0	1,000	1	17,500	3	18,500	4
	Georgia	0	0	0	0	0	0	7,000	1	7,000	1
	Florida	183,500	5	0	0	183,500	5	87,000	5	270,500	10
	Alabama	147,500	3	0	0	147,500	3	255,500	3	403,000	6
	Mississippi	3,500	1	0	0	3,500	1	0	0	3,500	1
	Total	340,500	10	0	0	340,500	10	367,000	12	707,500	22
VII	Louisiana	51,400	1	0	0	51,400	1	0	0	51,400	1
	Texas	0	0	0	0	0	0	0	0	0	0
	Total	51,400	1	0	0	51,400	1	0	0	51,400	1
IX	California	0	0	0	0	0	0	0	0	0	0
	Oregon	0	0	0	0	0	0	0	0	0	0
	Washington	0	0	200	1	200	1	0	0	200	1
	Total	0	0	200	1	200	1	0	0	200	1
UNITED STATES TOTALS		3,546,100	31	19,100	11	3,565,200	42	518,000	52	4,083,200	104

National Register of Shellfish Growing Areas

Table II

Intrastate Active Areas

Region	State	Approved		Conditionally		Total No. Approved		Closed		Total	
		Acres	Areas	Acres	Areas	Acres	Areas	Acres	Areas	Acres	Areas
I	Maine	291,600	96	0	0	291,600	96	58,000	96	349,600	192
	New Hampshire	0	0	0	0	0	0	0	0	0	0
	Massachusetts	24,600	33	3,100	16	27,700	49	5,900	41	33,600	90
	Rhode Island	3,900	4	200	1	4,100	5	800	4	4,900	9
	Connecticut	47,000	16	0	0	47,000	16	8,100	7	55,100	23
	Total	367,100	149	3,300	17	370,400	166	72,800	148	443,200	314
II	New York	390,200	57	0	0	390,200	57	120,900	29	511,100	86
	New Jersey	27,000	27	1,100	1	28,100	28	29,000	63	57,100	91
	Delaware	14,800	2	0	0	14,800	2	2,300	10	17,100	12
	Total	432,000	86	1,100	1	433,100	87	152,200	102	585,300	189
III	Maryland	314,400	17	0	0	314,400	17	57,300	17	371,700	34
	Virginia	530,000	8	1,100	1	531,100	9	54,800	8	585,900	17
	North Carolina	0	0	0	0	0	0	0	0	0	0
	Total	844,400	25	1,100	1	845,500	26	112,100	25	957,600	51
IV	South Carolina	132,500	14	100	1	132,600	15	32,000	3	164,600	18
	Georgia	97,300	8	0	0	97,300	8	36,400	8	133,700	16
	Florida	418,100	21	0	0	418,100	21	555,600	28	973,700	49
	Alabama	0	0	700	1	700	0	1,200	4	1,900	5
	Mississippi	23,000	3	8,500	1	31,500	4	87,300	4	118,800	8
	Total	670,900	46	9,300	3	680,200	48	712,500	47	1,392,700	96
VII	Louisiana	925,000	7	28,600	1	953,600	8	3,400	1	957,000	9
	Texas	289,600	6	13,600	3	309,200	9	178,600	5	487,800	14
	Total	1,214,600	13	48,200	4	1,262,800	17	192,000	6	1,454,800	23
IX	California	1,400	2	3,000	1	4,400	3	2,500	1	6,900	4
	Oregon	1,600	2	3,200	2	4,800	4	0	0	4,800	4
	Washington	43,200	34	0	0	43,200	34	800	10	44,000	74
	Total	46,200	38	6,200	3	52,400	41	3,300	11	55,700	52
UNITED STATES TOTALS		3,575,200	357	69,200	29	3,644,400	385	1,234,900	339	4,879,300	725

National Register of Shellfish Growing Areas

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Table III

Interstate Inactive Areas

Region	State	Fully Approved		Closed		Total	
		Acres	Areas	Acres	Areas	Acres	Areas
I	Maine	0	0	800	2	800	2
	New Hampshire	0	0	0	0	0	0
	Massachusetts	0	0	0	0	0	0
	Rhode Island	0	0	0	0	0	0
	Connecticut	-	-	-	-	-	-
	Total	0	0	800	2	800	2
II	New York	356,600	1	15,200	1	371,800	2
	New Jersey	0	0	0	0	0	0
	Delaware	0	0	2,300	2	2,300	2
	Total	356,600	1	17,500	3	374,100	4
III	Maryland	0	0	0	0	0	0
	Virginia	0	0	0	0	0	0
	North Carolina	0	0	0	0	0	0
	Total	0	0	0	0	0	0
IV	South Carolina	0	0	0	0	0	0
	Georgia	2,500	1	800	1	3,300	2
	Florida	0	0	15,000	1	15,000	1
	Alabama	0	0	0	0	0	0
	Mississippi	1,000	1	0	0	1,000	1
	Total	3,500	2	15,800	2	19,300	4
VII	Louisiana	0	0	2,500	1	2,500	1
	Texas	0	0	2,500	1	2,500	1
	Total	0	0	5,000	2	5,000	2
IX	California	0	0	0	0	0	0
	Oregon	0	0	0	0	0	0
	Washington	0	0	900	1	900	1
	Total	0	0	900	1	900	1
UNITED STATES TOTALS		360,100	3	40,000	10	400,100	13

National Register of Shellfish Growing Areas

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Table IV
Intrastate Inactive Areas

Region	State	Fully Approved		Closed		Total	
		Acres	Areas	Acres	Areas	Acres	Areas
I	Maine	0	0	0	0	0	0
	New Hampshire	0	0	0	0	0	0
	Massachusetts	0	0	0	0	0	0
	Rhode Island	0	0	0	0	0	0
	Connecticut	20,000	3	0	0	20,000	3
	Total	20,000	3	0	0	20,000	3
II	New York	60,000	1	3,200	1	63,200	2
	New Jersey	13,500	2	6,500	2	20,000	4
	Delaware	0	0	500	5	500	5
	Total	73,500	3	10,200	8	83,700	11
III	Maryland	0	0	0	0	0	0
	Virginia	0	0	0	0	0	0
	North Carolina	0	0	0	0	0	0
	Total	0	0	0	0	0	0
IV	South Carolina	0	0	0	0	0	0
	Georgia	19,300	2	500	2	19,800	4
	Florida	0	0	139,500	8	139,500	8
	Alabama	0	0	0	0	0	0
	Mississippi	0	0	0	0	0	0
	Total	19,300	2	140,000	10	159,300	12
VII	Louisiana	21,400	1	0	0	21,400	1
	Texas	393,600	6	50,100	6	443,700	12
	Total	415,000	7	50,100	6	465,100	13
IX	California	700	1	900	4	1,600	5
	Oregon	0	0	8,500	6	8,500	6
	Washington	-	-	-	-	-	-
	Total	700	1	9,400	10	10,100	11
UNITED STATES TOTALS		528,500	16	209,700	34	738,200	50

National Register of Shellfish Growing Areas

Table V
Summary

Growing Areas		Approved and Closed						Totals		
		Approved			Closed			Total		
		Fully	Conditionally		Total		Total		Acres	Areas
		Acres	Areas	Acres	Areas	Acres	Areas	Acres	Areas	Areas
Interstate	Active	3,636,100	31	19,100	11	3,655,200	42	516,900	62	4,172,100
	Inactive	360,100	3	--	--	360,100	3	40,000	10	400,100
Intrastate	Active	3,575,200	357	69,200	29	3,644,400	386	1,234,900	339	4,879,300
	Inactive	528,500	16	--	--	528,500	16	209,700	34	738,200
UNITED STATES TOTALS		8,099,900	407	88,300	40	8,188,200	447	2,001,500	445	10,189,700
										892

National Register of Shellfish Growing Areas
Table VI

Acres and Areas by States

Reg. State	Interstate			Intrastate			Total			Inactive			Total			Total		
	Acres	Active	Inactive	Acres	Active	Inactive	Acres	Active	Inactive	Acres	Active	Inactive	Acres	Active	Inactive	Acres	Active	Inactive
I Me.	2,300	2,300	0	0	3,300	0	3,300	0	0	0	0	0	0	349,600	192	352,900	200	0
II N.H.	5,500	5,500	0	0	5,500	0	5,500	0	0	0	0	0	0	33,600	90	39,100	96	0
Mass.	91,400	91,400	0	0	91,400	0	91,400	0	0	0	0	0	0	4,900	9	96,300	36	0
R.I.	7,800	7,800	0	0	7,800	0	7,800	0	0	0	0	0	0	75,100	26	82,900	32	0
Conn.	107,200	107,200	0	0	107,200	0	107,200	0	0	0	0	0	0	463,200	317	571,200	364	0
Total	38,000	38,000	0	0	38,000	0	38,000	0	0	0	0	0	0	574,300	88	934,100	93	0
N.Y.	447,000	447,000	0	0	447,000	0	447,000	0	0	0	0	0	0	77,100	95	524,100	98	0
N.J.	196,000	196,000	0	0	196,000	0	196,000	0	0	0	0	0	0	17,600	17	215,900	21	0
Del.	681,000	681,000	0	0	681,000	0	681,000	0	0	0	0	0	0	689,000	200	1,724,100	212	0
Total	825,900	825,900	0	0	825,900	0	825,900	0	0	0	0	0	0	371,700	34	1,197,600	45	0
Md.	826,000	826,000	0	0	826,000	0	826,000	0	0	0	0	0	0	585,900	17	1,411,900	23	0
Va.	972,900	972,900	0	0	972,900	0	972,900	0	0	0	0	0	0	0	0	972,900	10	0
N.C.	2,624,800	2,624,800	0	0	2,624,800	0	2,624,800	0	0	0	0	0	0	957,600	51	3,582,400	78	0
Total	18,500	18,500	0	0	18,500	0	18,500	0	0	0	0	0	0	164,600	18	183,100	22	0
S.C.	7,000	7,000	0	0	7,000	0	7,000	0	0	0	0	0	0	153,500	20	160,500	23	0
Ga.	275,500	275,500	0	0	275,500	0	275,500	0	0	0	0	0	0	1,113,200	57	1,403,700	68	0
Fla.	403,000	403,000	0	0	403,000	0	403,000	0	0	0	0	0	0	1,900	5	404,900	11	0
Ala.	3,500	3,500	0	0	3,500	0	3,500	0	0	0	0	0	0	118,800	8	122,300	10	0
Miss.	707,500	707,500	0	0	707,500	0	707,500	0	0	0	0	0	0	1,552,000	108	2,278,800	134	0
Total	51,400	51,400	0	0	51,400	0	51,400	0	0	0	0	0	0	978,400	10	1,032,300	12	0
La.	0	0	0	0	0	0	0	0	0	0	0	0	0	931,500	26	934,000	27	0
Tex.	51,400	51,400	0	0	51,400	0	51,400	0	0	0	0	0	0	1,909,900	36	1,966,300	39	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	8,500	9	8,500	9	0
Calif.	0	0	0	0	0	0	0	0	0	0	0	0	0	13,300	10	13,300	10	0
Ore.	200	200	0	0	200	0	200	0	0	0	0	0	0	4,000	44	45,100	46	0
Wash.	200	200	0	0	200	0	200	0	0	0	0	0	0	65,800	63	66,900	65	0
Total	4,172,100	4,172,100	0	0	4,172,100	0	4,172,100	0	0	0	0	0	0	5,617,500	775	10,189,700	892	0
U.S. Totals	4,172,100	4,172,100	0	0	4,172,100	0	4,172,100	0	0	0	0	0	0	5,617,500	775	10,189,700	892	0

E. M. Wallace

MRS. WALLACE: The time has come for the resolution of this conference to end the burden the duck industry has imposed upon all who depend upon the waters of Great South Bay for their livelihood.

The installation of a comprehensive sewerage system in Suffolk County will prevent further deterioration of the waters of the Sound and the Bays. We are encouraged to note that the State has offered 58 million dollars to begin the installation of sewers in Suffolk County.

Here is a copy of a news article, which may or may not be in the record. It just documents it. (Handing same to Mr. Stein.)

My husband had intended to show as a part of his exhibit the sludge deposits, deposited on Fire Island when Forge River was dredged. From these pictures you would be able to notice the escape of the sludge into the sea, which was intended -- this is true; but this poses another problem of dumping into the ocean. Off the shores of Long Island and extending to Cape Hatteras in North Carolina is another vast molluscan resource currently producing 43 millions of pounds of sea or surf clam meats per year. Waste disposal into the Atlantic Ocean over the continental shelf is escalating at such a rate as to motivate the United States Army Engineers to call several conferences,

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three of which have already been held. Because the Federal Water Pollution Control Administration has the responsibility to establish a national policy for the control and abatement of water pollution, we are bringing this problem to your attention for action before the kind of damage is sustained by the sea clam industry that we are considering here today to four other molluscan species, namely, hard clams, soft clams, scallops and oysters.

We are confident that the agencies of the State of New York will comply with the letter and the spirit of the Water Quality Act of 1965. The people of New York appreciate the urgency of improving the waters of our State in order to enjoy and reap the benefits of the resources that are both a necessity and a birthright.

Thank you.

(Two maps submitted by Mrs.

Wallace will be contained in the files of the Department as exhibits.)

MR. STEIN: Thank you, Mrs. Wallace.

I would like to take this opportunity, if there are any shellfish growers in here, to tell you that I have seen representatives of trade associations in Washington over a long period -- of many, many trade associations --

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and probably know most of them.

You have a magnificent bargain in Mrs. Wallace. She is one of the best. Considering the budget that evidently the shellfish industry operates on as compared to some of the other industries we deal with, such as the oil industry, the soap and detergent industry, pulp and paper, and so forth, she does an outstanding job. The job is done, as you can see, with beauty, charm, intelligence and hard work.

As always, you are one step ahead of us. You see, we came up here to do this, and in the next to the last paragraph she has given us another problem to work on already. That is how she keeps us off balance all the time.

MRS. WALLACE: Thank you, Mr. Chairman.

MR. STEIN: I just wanted to say this in front of some of your constituents, because I am not sure they all know how hard you work for them down in Washington. When she is there, she works every minute of the day.

MRS. WALLACE: Thank you.

MR. STEIN: Mr. Metzler?

MR. METZLER: Well, of course, after those complimentary remarks, which I certainly would endorse, it seems almost inappropriate to ask you a question. Yet, I am very much interested in this statement about two million

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acres of shellfish grounds that are closed or inactive because of pollution.

MRS. WALLACE: Yes, sir.

MR. METZLER: Is similar action being taken elsewhere, and do you anticipate that we are going to get these opened up again? If pollution is abated, will the industry reopen these grounds?

MRS. WALLACE: If the Public Health Service will permit us to do so, you can be sure, as soon as the sanitary qualities are met, we are in business bigger and better than ever.

MR. METZLER: You think, though, the industry actually is interested in getting back at the opening up of as much of these as they can get Public Health Service approval for?

MRS. WALLACE: An unqualified "yes, sir."

MR. METZLER: I am glad to hear that. Maybe the price of oysters won't continue to escalate.

MRS. WALLACE: That is true.

MR. STEIN: Are there any other questions?

MR. METZLER: No.

MR. STEIN: Thank you for a very constructive statement.

I do have one announcement to make, giving you

the schedule.

I suspect that you people who have decided to come here tomorrow probably have made a wise choice, because you may have a little larger audience.

If the weather holds, if it does not deteriorate and our airplanes operate the way we would hope they would operate, we will have Senator Kennedy here at about nine o'clock to make his statement. Then we will go on with the rest of the conference. I think we can do this, although the Senator has a very, very tight schedule, so we are looking forward to a very interesting meeting tomorrow.

I think we have had a very productive session here today, and a very enlightening one. We do have the problem outlined very, very clearly.

I noticed in your list of witnesses, Mr. Metzler, that we do have just one person from the duck industry. I hope we will hear from them to get their point of view, because I think that is essential in the record, and I hope that that representative will bear with us and give us the point of view here, because we have not gotten that point of view in the record yet. I know that we are all interested in hearing it.

Mr. Metzler; do you have anything else?

MR. METZLER: No, only to say that we do have ten witnesses in addition to the Senator, who have indicated

their interest in appearing tomorrow.

If there are any others, let me know.

MR. STEIN: All right. We will now stand recessed until five minutes to nine, tomorrow morning.

Knowing the schedule that we just received from Senator Kennedy, we are not going to be able to dawdle once he gets here. He is going to have to go on promptly at nine.

So we will stand recessed until five minutes to nine tomorrow.

(Whereupon, at 5:25 p.m., the conference was recessed until 8:55 a.m. of the following day, Wednesday, September 21, 1966.)

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Conference in the Matter of Pollution of the Navigable Waters of Moriches Bay and the Eastern Section of Great South Bay, Long Island, New York, reconvened at 9:20 a.m., on Wednesday, September 21, 1966, at Felice's Restaurant, Patchogue, New York.

PRESIDING:

Mr. Murray Stein, Assistant Commissioner
for Enforcement, Federal Water Pollution
Control Administration, Department of the
Interior

CONFEREES:

(As heretofore listed.)

P R O C E E D I N G S

MR. STEIN: May we reconvene?

We will continue with the New York State presentation. However, as many of you know, Senator Kennedy is due to arrive rather shortly. Because of the weather, I think he may be slightly delayed, as he is. He has a very tight schedule. He is, as far as I know now, due to be back in Washington, D. C., at 12 o'clock today, and that's going to take some pushing on our part for him to do it.

I would like to get started, but I would like to have your maximum cooperation, so the person who is making his statement may be asked to be interrupted, if we have to, when the Senator comes in.

With that, I will call on Mr. Metzler.

MR. METZLER: Let's get off the record here for just a minute, please.

MR. STEIN: Surely.

(Discussion off the record.)

MR. STEIN: I would like to thank all of you for braving the weather today. We didn't brave the weather the first day. The first day we braved oratory to come here.

The Senator, with all of his interests, also has

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a tremendous interest in New York's water resources, New York's natural resources, and particularly, as far as we are concerned, in keeping the waters clean. The Senator does his homework, and does his homework so well, he keeps us doing our homework too.

Senator Robert Kennedy of New York.

STATEMENT OF THE HONORABLE ROBERT F. KENNEDY,
UNITED STATES SENATOR FROM THE STATE OF NEW YORK

SENATOR KENNEDY: Thank you, Mr. Stein.

First, I want to thank you for your interest and the effort that you have made not only in holding this conference and being willing to come up here and taking this personal interest, but for the interest that you have taken in all of these kinds of problems throughout the State of New York.

I think that your efforts and your personal endeavors have made a major difference for us, and I think, without any doubt, the stimulation that you have given both for Lake Erie and for the Hudson River, and now for the tip of Long Island, has been very, very important and very, very significant for any of the progress that we have made, or at least the interest that we have taken toward trying

to make some progress.

I welcome this opportunity to testify before this conference on the pollution problems of Moriches and Great South Bays.

On August 3, 1966, Congressman Otis Pike and I requested Secretary Udall to convene this conference. We made this request because of the growing dangers of pollution to the economy of Suffolk County and those who enjoy the beaches and waters.

Our request was based on a provision included in the Federal Water Pollution legislation passed by the Congress last year which states that the Secretary of the Interior can call a water pollution enforcement action if he finds that pollution of waters within one State makes it impossible to market shellfish from its waters in interstate commerce.

This is just what has happened in these two bays bordering Long Island's south shore. It has been estimated that clams and oysters worth more than \$2,500,000 cannot be harvested each year because of the pollution entering Moriches and Great South Bays. The New York State Conservation Department has closed major portions of these waters to shellfishing because agricultural and residential sewage has contaminated local shellfish.

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The effects of water pollution can be seen in the records of the last decades. In 1941, 1,700,000 bushels of oysters were taken from Long Island's waters. In 1963, the harvest was minimal, a mere 60,000 bushels. The Blue Point oyster, a byword to those who appreciate seafood, has all but disappeared. Similarly, the clam harvest has dropped from a high of 672,000 bushels in 1947 to a level of 210,000 bushels in 1963.

There is no question that pollution is partly responsible for this loss. For all of the areas close to Long Island's shore as specified in the New York State Conservation Department's order of March 15, 1966, are out of bounds to shellfish harvesters. The clam harvest might well be doubled if these areas were open to shell fishermen. And if the pollution in these bays increases, the Conservation Department may have to decree that no shellfish be taken from these waters.

But although this conference centers on the dangers to shellfish, the problems of water pollution in Moriches and Great South Bays illustrate the problem that faces all of our wetlands and coastal bays on each coast. Whether it is Great South Bay, Hempstead and Oyster Bay, on Nassau County's south shore, Chesapeake Bay, the tidewaters of the Carolinas or the Gulf of Mexico, these coastal areas

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all share pollution problems.

The major problem is the expansion of our population into rural and suburban areas. As families move out of our cities into attractive towns and villages, they bring with them requirements that these small communities have not faced in the past. New highways, homes, schools and stores must be constructed to serve these growing communities. And special community facilities such as sewers, sewage treatment plants, and power lines must be constructed. For without these facilities, the seeds of blight blossom into decay as these communities grow older.

If we do not demand the municipal planning that predicts our sewage treatment needs; if we do not demand the zoning laws and bond issues that guarantee that new homes and new industries do not dump raw wastes into local rivers and bays, we will spoil the land that we settle. Unfortunately, this has all too often been our pattern of suburban development.

Suffolk County is a good example of this problem, for it is now experiencing a major population increase. The pattern of development in Suffolk over the next ten years will determine whether we will know eastern Long Island as an area of magnificent beaches, of handsome communities,

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and of challenging employment, or whether we know it as an area of suburban sprawl, of ruined natural resources, of contaminated beaches, of lost opportunities.

We need only to look west to Nassau County to recognize the scope of the problem. In 1920, Suffolk and Nassau Counties had roughly the same population, 110,000 and 120,000 respectively. By 1950, Nassau had a population of 673,000, while Suffolk had only 276,000. Between 1950 and 1960, Nassau County more than doubled in population, and today it has a population of almost 1- $\frac{1}{2}$ million. The new residents of Nassau County in many cases overwhelmed local public services, with the resulting destruction of natural resources.

Our economists predict that Suffolk County will have a population of 1- $\frac{1}{2}$ million by 1985. If Suffolk County is to profit from Nassau's experience, action must be taken now to prevent the destruction of local resources. Every dredging license and every building permit must be analyzed in terms of its effect on local resources. We must ask what the effect of dredging will have on Mt. Sinai Harbor. Is it necessary to provide additional marina space?

We must ask whether New York State and Federal regulations are being followed in developments along the Nissequogue River.

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We must ask how the Long Island Lighting Company will handle the cooling waters from its proposed nuclear power plant on the North Shore. Will these cooling waters destroy fish life in the area where they are discharged? Or will Long Island Lighting provide ponds, towers or artificial streams that will cool these waters before they are discharged into Long Island Sound?

We must also ask ourselves whether we can continue to build cesspools and septic tanks to handle the sewage from individual homes in Suffolk County. At what point will eastern Long Island's water table be polluted by cesspools? When the population reaches 1 million? $1-\frac{1}{4}$ million? $1-\frac{1}{2}$ million? There is one positive answer to this question. If we do not build sewer lines and sewage treatment plants, we will pollute the groundwater on eastern Long Island. And this, in turn, will pollute the wetlands and bays.

Today we are considering the problem of pollution in Moriches and Great South Bays. There are several major sources of this pollution. The duck farms located along the streams that feed into these bays and along the shores of these bays are the major source of pollution. Duck wastes are carried into the bays and pollute the waters close to shore.

The Long Island duckling, famous for its flavor

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and tenderness, is mainly raised on eastern Long Island. They grow in the marshes and pens along Suffolk County's south shore. In 1964, sales of ducks and other poultry products from Suffolk County totaled \$9,162,000, or one-fifth of the agriculture products produced by Suffolk County.

Unfortunately, the wastes produced from these duck farms are carried by streams, tide and seepage into these bays. If the water circulation in these bays is poor, the area banned to shellfish harvesters is increased. And if these wastes are not limited, all of Moriches and Great South Bay may be placed off limits to shell fishermen.

Municipal wastes are also a problem. The wastes from a small part of the population, the 5,000 people in the village of Patchogue, are treated by a local treatment plant that removes 30 percent of the active ingredients. Today, the pollution from this source is only 5 percent of that from the duck farms.

But most people in the drainage areas of these bays have cesspools or septic tanks. Disposal of sewage in this manner is only a temporary solution. For in sufficient quantity, these cesspools and septic tanks will pollute the groundwater. As population grows in Belleport Center, Moriches, Mastic Beach, and Patchogue, sewers and

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sewage treatment plants must be constructed.

In this case we do not have to choose between ducks and clams. Suffolk County now has the opportunity to treat both its agricultural and municipal wastes. Combined sewage treatment plants can be constructed to serve both local residents and the duck farms. The waters draining from the duck farms can be processed by local treatment plants before being discharged into Moriches and Great South Bays. And the municipalities can pay for the extra sewage treatment plant capacity needed to serve the duck farms by charging a fee for this service.

As a result of action taken by the Congress this year, the Federal Government stands ready to assist Suffolk County in constructing sewers and sewage treatment plants. The water pollution control legislation that I co-sponsored with Senator Muskie this year provides \$6 billion over the next six years to meet problems of the type you face here.

This bill increases the amount currently available from \$150 million this year to \$1.5 billion a year by 1971.

This bill will provide more than \$550 million to New York State over the next six years.

This bill increases the Federal share to 50 percent of costs in some cases.

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This bill removes limitations on individual grants so that cities such as Buffalo, Rochester, and Syracuse can receive grants that help meet the costs of projects of \$36 million, \$33 million and \$30 million respectively.

This bill establishes a revolving Federal loan fund to help communities finance their share of the costs of new construction.

And the bill allows States to prefinance the Federal share of approved projects to insure that there will be no delay in initiating construction.

This bill passed the Senate on July 13, 1966. It puts muscle behind the Senate's resolve to clean up our waters.

Unfortunately, the House version of this bill does not include the same amount of money. It only authorized \$2.45 billion over the next five years. It neglects the fact that sewer and sewage treatment plant construction are major capital expenditures that take several years to plan and several years to build. Unless we authorize the necessary funds now, these sewers and plants will not be constructed.

When this bill is reported to the House Floor, I know that members of the New York Congressional Delegation,

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such as Congressman Pike, Congressman Murphy, Congressman Tenzer, and Congressman McCarthy will do what they can to increase the funds authorized by the bill. I am hopeful that they are successful in increasing the funds authorized by this bill. Their success or failure will partially be determined by the support they receive from the Administration. I again urge the Administration's support for the increased water pollution funds, funds that would add substance to the Administration's expressed interest in water pollution.

There is a connected problem that plagues our efforts to reduce water pollution. Although Federal assistance is available to help construct the sewage treatment plant and the interceptor sewers that are the major arteries of a sewer system, a very limited amount of assistance is available to help construct lateral sewers, the sewers that collect wastes from the individual homes. Yet, without this vital third of a sewage disposal system, the system cannot function.

The Department of Housing and Urban Development now has a total of \$100 million each year to pay up to half of the costs of construction of lateral sewer systems. As of September 1, 1966, they had received requests totaling \$2.6 billion more than 25 times the amount available.

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There can be no question that additional funds must be provided to help construct lateral sewers. This program must be increased if Suffolk County is to meet its water pollution problem. I urge the Administration to request the funds for the coming year necessary to bring this program into balance with the rest of our water pollution control efforts.

But in the meantime, with the assistance of Congressman John Dow and Congressman Richard Ottinger, an amendment will be offered to the housing bill currently before the House allowing communities to prefinance the construction of lateral sewer systems without losing their eligibility to receive Federal assistance. This provision would allow those communities that face initial decisions regarding water pollution control to act now, even if Federal lateral sewer construction funds are not currently available.

The Federal Government can also help by stabilizing Moriches Inlet. This action will increase the circulation of the tidal waters moving in these bays and dilute existing pollution. I am asking the Corps of Engineers to undertake the necessary studies required to stabilize Moriches Inlet.

This Federal assistance provides some of the tools needed to combat water pollution. But it does not

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provide the resolve and the work necessary to do the job. No amount of Federal assistance can remedy a situation where a sewage treatment plant recently constructed in response to a request from the New York State Conservation Department is left unused, as has occurred in Southampton.

You may wish to organize those interested in the conservation of Moriches and Great South Bays into a Moriches and Great South Bays Conservation Commission, as suggested by the Citizens Committee for the Fire Island National Seashore.

But it is up to you to demand that bond issues be passed to pay the local share of sewer system construction for all of Suffolk County. It is up to you to see that local zoning laws require sewage treatment for all new construction. It is up to you, who know and treasure eastern Long Island's natural resources, to act now.

We can intelligently develop and conserve eastern Long Island -- or we can destroy it. I know that we will make the right decision.

I have tried to stress, Mr. Chairman, in this statement that although the struggle and the attention now is in connection with the ducks and with our clams and with our oysters, I think the problem is far more complex,

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and far deeper than that. The problem that is facing this part of Long Island I think is far more serious than that.

This obviously requires our immediate attention, but I think to realize the problems that are going to exist in this part of our State over the period of the next twenty years, with the tremendous growth of population and the tremendous growth that is going to take place, the tremendous problems that we are going to have to deal with twenty years from now -- unless we handle intelligently this problem immediately we are facing a most serious situation. That comes from the increase of population, the increase of factories, stores, houses, homes, schools, which will increase our problem of pollution. So, although I am happy that we are focusing attention on it now because of the difficulty and the conflict between the ducks and the clams and the oysters, I want to make sure that we consider not only that and what can be done about that -- and I think some things can be, as I have outlined. I also want to make sure that we all understand that the problem is far more complex, far more difficult and that if we are going to have the kind of Long Island and the kind of eastern Long Island that I know the people out here want, we are going to have to take steps now that go far beyond dealing just with the problem of our ducks.

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MR. STEIN: Thank you, Senator, very much, for a magnificent statement, and a very superb analysis.

You can see we don't get glittering generalities. The Senator has put his finger on what we have spent perhaps a day or more in arriving at.

Let me assure you, Senator, that while the ducks got us out here and the shellfish, we did arrive at more or less the same conclusions, after hearing all the people here, that you have outlined.

As we see the problem, there are four major problems that have to be dealt with, and dealt with now:

One is the pollution coming from people in the factories.

The second is the duck pollution.

The third is, we have to get into the bay and do something about the accumulated sludge in the bay and get that out.

The fourth aspect of the problem is stabilizing the inlets, such as Moriches Inlet and Jones Inlet, so that we can have that delicate balance of saline and fresh water to produce the exact ecological conditions necessary.

For the Federal Government, I would like to pledge at least the Executive's ability to give this highest

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priority and work with you and the State people, and, hopefully, the local people, in arriving at these solutions.

SENATOR KENNEDY: I am delighted to hear that.

MR. STEIN: Mr. Metzler, do you have any comment?

MR. METZLER: I was particularly pleased, Senator, to hear your comments about the current bill which is before the Congress, the 1966 Pure Waters Act.

Of course, as you know, New York believes that the Senate version, which you and Senator Javits supported, is far more adequate.

My question: Is there anything which you would suggest, beyond your prepared remarks, which we can do to bring the House version, as reported out by the House Public Works Committee, more in line with the Senate?

SENATOR KENNEDY: Well, I think there has to be great public interest and great public demand for it.

It is going to mean, as I think I pointed out here, \$550 million for the State of New York. The House version is going to be just a fraction of that.

If we are going to deal with these kinds of problems out here in Long Island, and deal with the problems that affect the rest of our State, we are going to have to have this larger sum of money.

The State of New York has indicated that they are

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going to put up a billion dollars themselves through our bond issue, so we are willing to do our part. However, I think that in this whole effort we can talk about pollution and we can make speeches about pollution, but unless we are willing to put up the money to deal with it, then I think we are just deceiving ourselves.

If we have only the House bill, then we are not going to be able to accomplish the task here in the State of New York over the period of the next five years. I would think our situation, instead of improving, is going to become more serious.

I mentioned the figures out here for Suffolk County and the fact that we are going to have a population of 1,500,000 in the next twenty years, but we also have to consider that the State of New York in the next thirty years is going to have 10 million more people living in here.

Where they are going to live, and the stores, the factories, the jobs, their homes, their recreation, this kind of situation is all going to descend on us and descend on our children. Unless we take the action now, the problems they are going to face are going to be so much greater and so much more immense.

It seems to me we have a responsibility to the next generation of New Yorkers to do something about it.

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I am terribly interested in pollution, because I think that that is just going to affect all of our lives, and affect the environment in which we grow ourselves. Also it will affect the kind of a State that we are going to turn over to the next generation.

I have taken my interest around the State. I think that this is one of the most valuable assets that we have, the eastern part of Long Island, and I think that that asset will be destroyed if we allow the waters that surround eastern Long Island to be polluted.

We can develop its industry; we can develop its economy; and at the same time I think we can preserve it in a way that it means so much to the people who live here already, and for the people who will grow up here in future generations.

That is why we are here -- why this meeting is so important, and why I have flown up here today to give my statement, because I think it is so vital and so important.

However, I think that there has to be attention on the importance of the Senate bill over the House bill. Those people who feel strongly about it should contact their Congressmen and make their views known, and I would hope the State of New York would make an active effort in that.

MR. METZLER: I might say in this respect that

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we are contacting the New York Delegation in support of the Senate version.

SENATOR KENNEDY: And I think also whatever can be done, if we have contacts in other States -- because this is going to affect other States as well -- we should get them busy on it.

MR. METZLER: Thank you.

MR. STEIN: Are there any further comments or questions?

(No response.)

MR. STEIN: If not, thank you very much.

SENATOR KENNEDY: I am flying back to vote.

MR. STEIN: We understand that.

SENATOR KENNEDY: And I appreciate your putting me on early, so that I could do so.

MR. STEIN: We are delighted that you could come, and your analysis and your help will certainly move us forward.

I would like to mention just one or two more things before you go, Senator.

I think we do have the State and the Federal Government ready to help with this. Obviously, this problem cannot be handled here unless we have State, Federal and local full cooperation. We need the local cooperation.

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SENATOR KENNEDY: Absolutely.

MR. STEIN: I have one more point, and I think this should be emphasized.

We are trying an experiment here that we have not seen anywhere else. Any large city with a large population generally has a surface water supply. You do not have one in Long Island. Our challenge is really great here.

We have this underground water supply. We have the water around us. If we are just going to have the people here, the industries, the factories, and the schools, and do with the water that we have here, we are really going to have to be not only ingenious, but we are going to have to be cooperative, and we are going to have to devise governmental systems that can handle this problem, just for survival and growth.

SENATOR KENNEDY: That's very good.

Thank you very much, Mr. Stein, once again.

MR. STEIN: Thank you very much.

(Applause.)

MR. STEIN: Let's have a five-minute recess.

(Whereupon a recess was had.)

MR. STEIN: May we reconvene?

I think with a little effort, we can settle down.

Mr. Metzler?

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MR. METZLER: Thank you.

I am aware that each of you who are interested really have no idea of when you are appearing. One of the witnesses said yesterday that I surprised her a little bit, so would you mind if I read off the list of witnesses in the order that I have them? If there is any great dissension as far as this order, if you will let me know, if you are inconvenienced by the order in which you come, let me know. Otherwise, we will put them on in this order.

Mr. Catterson will be next, then Mrs. Sherard, Mr. Henkel for the County Sewer Authority, Hugh Mercer, Mr. Barbash, Mr. Furman, Mr. Licht, Dr. Vanderborgh, Mr. Hoek, Nelson Houck, and Mr. Cosulich -- in that order.

Hearing no objection, then let's proceed.

Mr. James Catterson, who is Chairman of the Brookhaven Town Oceanography Committee.

Mr. Catterson.

STATEMENT OF JAMES M. CATTERSON, JR., CHAIRMAN,
BROOKHAVEN TOWN OCEANOGRAPHY COMMITTEE

MR. CATTERSON: Good morning. Mr. Chairman,
ladies and gentlemen:

My name is James M. Catterson, Jr., and I am the

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Chairman of the Brookhaven Town Oceanography Committee.

This committee, for those of you who are not familiar with Brookhaven Town, was recently formed with the objective of pooling the resources of the town as far as industry, science, university, business, with the aim of coordinating all efforts on the town level, and possibly on the level of Suffolk County, to encourage and develop, where possible, an interest in oceanography, the production of the sea, and those other fields of science and industrial endeavor which will enable us to exploit to the fullest the natural resources around this county, which, I might add, has the longest shoreline of the State of New York.

Of course, interest in the Great South Bay with our committee is paramount. It goes without saying that you can't be interested in the production of the sea without a parallel interest in the estuaries, the bays, the marshes and the coves, for from these spring the life that you gentlemen here -- the scientists and the men of marine science -- know fully too well.

Let me point out at the outset, Mr. Chairman, I am not a scientist. I am not a physicist. I am an attorney, and therefore I do not deign to tell you gentlemen or even advise or make any comments upon the very fine presentations you have heard here today; but I do think at

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this time, Mr. Chairman, it might do well to review, that which an attorney can do, the legal ramifications and the legal precedents in those steps which have taken place heretofore, which point out that the people of Suffolk County and the Town of Brookhaven have not been unaware of our problem in the Great South Bay, but, in fact, have been aware of this problem for many, many years.

MR. STEIN: You know, we are in good company. The Senator is an attorney too, and you saw the analysis he made.

MR. CATTERSON: I heard that this morning. In fact, I used to work for him for a short time -- in the Department of Justice, that is.

Now, as far back as 1951 to 1958, the Woods Hole Institute, as you are familiar, made comprehensive studies of the Great South Bay, particularly the pollution problem at the Moriches Inlet and Shinnecock. Their reports are extensively covered in the Corps of Engineers report of 1959, which attributes directly and as the main cause of pollution in the Great South Bay the shoaling and the closing off periodically of the Moriches Bay Inlet.

If I may quote briefly from the Engineers' survey report, which includes a quote from the Woods Hole survey -- and this, incidentally, is at Page 33 of the Moriches

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and Shinnecock Inlet letter from the Secretary of the Army transmitting the report referred to to the Committee on Public Works, May 4, 1959 -- it says:

"The closing of the Moriches Inlet from 1951 through 1953 during the course of the Woods Hole study affords a recent comparison of the conditions in Moriches Bay with and without the inlet.

"In 1950, before the inlet closed, the salinity in Moriches Bay averaged 28 parts per thousand for about 85 percent of sea water, the excess amount of phosphorus averaged..."

and it goes into certain details which you gentlemen have already discussed.

In 1950, the Woods Hole report concluded that,

"The unsatisfactory condition of Great South Bay for the production of oysters was the result of excessive pollution by organic matter, particularly originating in Moriches Bay. The closure of Moriches Inlet in 1951 had the effect of gravely retarding the escape of pollutants from Moriches Bay and more of the pollutants reached Bellport Bay than prior to the closure."

The 1954 Woods Hole report, which was made after additional investigations, concluded as follows:

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"It is imperative that Moriches Inlet be maintained in as open a condition as possible. Closure of the inlet would certainly be followed by the cesspool-like conditions of Moriches Bay experienced from 1951 to 1953. Further decrease in the concentration of pollutant chemicals in the bay water may not be expected without further and more effective employment of sanitary engineering practices on the duck farms."

The 1954 report further found that with Moriches Inlet opened, that tidal exchange between Moriches Bay and Bellport Bay is reduced, and the condition in Bellport Bay and Great South Bay is improved.

The 1956 Woods Hole report, based on a survey made during August of that year, found that pollution in Great South Bay had not abated, and that the improved conditions for the growth of shellfish that were noted may be ascribed entirely to the tidal flushing action through Moriches Inlet.

The 1957 Woods Hole report concluded that:

"If improved conditions in Great South Bay are to continue, it is mandatory that Moriches Inlet be widened, deepened and stabilized as quickly as possible."

Taking heed of the Corps of Engineers' recommenda-

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tions, the Congress in 1960 enacted the 1960 Rivers and Harbors Act, which authorized an expenditure of some \$6,468,000 for the stabilization of Moriches Inlet and for Moriches Bay Inlet. This was signed and passed into law in July of 1960 by then President Eisenhower.

In 1962, the County of Suffolk authorized the expenditure of \$3 million to meet its share in this Federal project. New York State at that time also authorized its matching funds to meet the improvement of the Moriches Bay Inlet Stabilization Project.

On August 19, 1966, we pointed out that between 1960 and 1966, not one penny of Federal funds had been authorized by the Congress under this Administration to stabilize the Moriches Bay Inlet.

In 1966 alone, we have already had three fatalities in the Great South Bay, and over 18 injuries, as a direct result of the shoaling action of the Moriches Bay Inlet. I realize, of course, that safety is not the paramount purpose of this meeting. However, it certainly goes hand in glove that we are just as much interested in public safety as we are in duck wastes or potato bugs, for that matter; and, therefore, I respectfully request that and would note that any contemplation of pollution, where it does go into an overlapping Federal jurisdiction such as

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the Corps of Engineers, must be coordinated, so that we can bring all forces to bear at one time.

After I pointed out on August 19, 1966, that the Congressman from this District had evinced little, if any interest, in this project, except to give it lip service, and that he had not only failed to appear before the Appropriations Committee, the Public Works Subcommittee, to present Long Island and Suffolk County's position in this matter, but that he had even failed to file a statement requesting funds from the Appropriations Committee to begin this project, it was only then that he, in informal conversations with members of the Appropriations Committee, prevailed upon them to allocate some funds for the Moriches Inlet Project.

Therefore, we find that in a news release of September 16, 1966, \$100,000 have been earmarked by the Appropriations Committee to get this project to stabilize Moriches Bay Inlet under way.

Of course, we also find \$200,000 for East Rockaway Inlet, and some other work for Great Neck.

Now, far be it from me to suggest that these funds have anything to do with November 8th, or the fact that they are located in districts which contain incumbent Congressmen of the Administration's party which are running for office

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at this time. I am sure it has nothing to do with it.

The fact does remain, however, that in 1965 a letter was written to Mr. Kennedy, the previous speaker, urging him to take action to bring all the forces that he could bear on the immediate pressing job of stabilizing Moriches Bay Inlet, providing for the safety of the people and decreasing pollution.

I note at long last in his statement today on Page 4, that he is asking the Corps of Engineers to undertake the necessary studies to stabilize the Moriches Inlet. I am sure the Senator must have been told by the Congressman from this District that such studies were undertaken in 1958.

Why have I brought all this to bear?

Mr. Chairman, the people of Suffolk County full well realize the vast importance to the Great South Bay. The pollution problem has been with us for many years, and in a country that can appropriate only yesterday 3.07 billion dollars for foreign aid, and also report, out of committee, 2.4 billion dollars for the poverty funds -- is it possible, sir, that rather than engage in another tack, that the Engineers could be authorized and urged by yourself and by this committee to undertake a reasonable expenditure of moneys to improve the inlet and to take advantage of the scientific reports that have been available since 1951,

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which attribute much of the pollution caused to the lack of flushing action, and which could be corrected by the Moriches Bay Inlet Stabilization Project?

I say this with full knowledge that we of Suffolk County will take advantage of any Federal funds from whatever source they come, be they from the Pollution Act or from the Corps of Engineers; but it seems a shame at this late date to raise a hue and cry of the pollution in Great South Bay, when all along we have been acutely aware of the problem, and have been only requesting the Federal Government to do its fair share.

Thank you very much.

MR. STEIN: Thank you.

Are there any comments?

MR. METZLER: Well, I don't think I have comments.

It seems to me these remarks have brought the problem in focus from the local point of view very well.

MR. STEIN: Well, Mr. Catterson, let me make one comment on the record, and then we can get off the record.

No one is saying that the pollution problem has just come into being here. It is recognized this is a long-term problem.

The reason we are just here now is the law was recently amended authorizing us to get into a problem of

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this kind, by the Federal Government. We could not have done this before without a request from the Governor.

MR. CATTERSON: Mr. Chairman?

MR. STEIN: Go ahead.

MR. CATTERSON: We just say welcome aboard.

MR. STEIN: Now, let me get off the record, if you don't mind.

MR. CATTERSON: Certainly.

(Discussion off the record.)

MR. STEIN: All right. Let's get on the record.

MR. METZLER: The next witness for New York State is the Water Resources Chairman of the Suffolk County League of Women Voters, Mrs. James Sherard.

Mrs. Sherard.

STATEMENT OF MRS. JAMES R. SHERARD, VICE
PRESIDENT, LEAGUE OF WOMEN VOTERS, TOWN
OF ISLIP; CHAIRMAN, WATER RESOURCES COM-
MITTEE, SUFFOLK COUNTY COUNCIL

MRS. SHERARD: I would like to say, Mr. Chairman, at this time, and remind everyone that we are a non-partisan group (laughter), and, in specifics, I might say that all of us are quite aware of the establishment of the

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Fire Island National Seashore in this area. This, Mr. Chairman, was, I believe, an excellent example of bipartisan support.

We in the League have tried to work with both parties. Sometimes we are not as effective as we would like to be, but nonpartisan support is what we believe in.

I am appearing here today as a representative of over 600 members in the six Leagues of Women Voters in Suffolk County: Bellport, Huntington, Islip, North Brookhaven, Riverhead and Smithtown. We appreciate the opportunity to speak here today. May I say that we are pleased that you have decided to hold an enforcement conference here at this time.

I know, Mr. Chairman, yesterday, when Dr. Leone was speaking, you called him to task for saying that this conference would bring to light the problems of water pollution in the county, but I would like to reaffirm this, that hopefully this conference will focus public attention on the pollution problems in all of Suffolk County, and, of course, more specifically, pollution in the valuable estuaries of Moriches and Eastern Great South Bay.

League concern over the ecological balance of our marine estuaries goes back many years. Our first conservation study led to our active support of county acquisition

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of river wetland areas. We later participated in the citizen campaign that led to the creation of the Fire Island National Seashore.

Last year at this time, Leagues throughout the county worked diligently to get out a "yes" vote on the New York State Pure Waters Bond Issue. We held a well-attended Water Resources Institute to spotlight the importance of the bond issue to Suffolk County and distributed thousands of bumper stickers and pamphlets. We realized at that time that with the passage of the proposition, our work was just beginning.

This year Leagues in Suffolk County have joined together in a further study of water pollution in Suffolk County directed specifically to the need for a sewer system and sewage treatment to prevent further pollution of our underground and surface waters. Our study group has also explored various solutions being offered as stop-gap measures until such time as the entire county is served by adequate sewerage facilities. Thus far, we have not had the opportunity to bring all this information to our membership and come up with specific answers which we will actively support. Nevertheless, we would like to share possible answers with this conference.

I think many of you whom we have worked together

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with in this room have often said the League is always studying. I think that most of you are aware that we also act.

Our study has led up to a long list of offenders. In the words of Glibert and Sullivan, "We've got a little list of society offenders that never would be missed." This list ranges from duck farmers to dredgers, from Sunday gardeners to restaurants, from cesspool cleaners to State Hospitals, from our next-door neighbor's boat to our own washing machines. Not one of these could be exempt from responsibility. This enforcement conference should consider all; for all can and do affect the purity of our surface and underground waters.

Naturally, one of our first questions was what is being done about these and other offenders. Our Federal, State, county and local governments have laws, ordinances, and regulations on the books to help combat this pollution. Are they efficient or not? Some are adequate and some inadequate, but a law without enforcement is all but useless. Our committee found that in the area of water pollution in Suffolk County those people or commercial enterprises that abide by the law or attempt to seek legal means to correct conditions which are illegal sometimes suffer most from decisions of the courts and public officials. The shellfish industry abides

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by the law and does not take shellfish from polluted water. At the same time, polluters who are under order to stop polluting are given continuous extensions of time to update their facilities. A restaurant on the water, under order to clean out its cesspool at regular intervals, abides by the law at considerable expense, but is next to another who, because of lack of enforcement, completely disregards the law. Our health and conservation departments have been working diligently to get conformity to laws and regulations. It sometimes seems odd to think of an enforcement office, figuratively speaking, down on its knees pleading to the offender to "cease and desist."

We are interested in the pilot treatment plant for duck wastes which, after many years of discussion, according to the press release recently, is under way. We hope this first will not be last. A pilot treatment facility for laundromats, which makes it more economically feasible for laundromat owners to conform to regulations, is being tested. These are just two examples of what can be done when public officials decide something must be done about a critical situation. A new State law requiring sanitary facilities on boats could lead to interesting enforcement procedures. (Laughter.)

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We have also found that personnel in the health and conservation departments are overworked and underpaid considering the degree of training required. We must have adequate inspection for enforcement, and we cannot have adequate inspection without sufficient trained personnel. The public should demand adequate funds for these purposes.

Now, what about the regulations and laws themselves? Suffolk County's phenomenal growth, which Senator Kennedy stated and many other people have talked about today, from 276,000 in 1950 to 600,000 in 1960, to close to 1,000,000 today, and a projected 2,000,000 in 20 years, has meant that regulations sufficient for today are outmoded by tomorrow. In the health department, the same men who are working overtime to enforce present regulations are at the same time conceiving new regulations and attempting to get conformity, with the result that sometimes, under public pressure, town governments have written ordinances which are even stricter than current health regulations. At other times, builders and the general public have had to go to extra expense in order to conform to regulations which had recently been changed. Couldn't regulations be designed that would be sufficient for projected growth of several years?

We also find that our present laws exempt Suffolk

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County from a law giving the Conservation Department jurisdiction over wetlands. We are told that the reason for this was that Suffolk County standards were higher than New York State's, but the result seems to be that we end up with no enforcement at all. What is the answer to this? Some towns have called in the State Conservation Department to make a survey of wetlands so that the town can go about preserving them. Should all towns do this? Should this be a county-wide project? Other questions that we are considering are: Should we have a commission made up of all levels of government and all concerned departments, a commission empowered to protect wetlands and surface waters? Should builders be required to get permission from the State Conservation Department as they do from the County Health Department? Any such project would, of course, require more trained personnel in the present State Conservation Department.

In many areas, Moriches and Great South Bay included, various interests are in competition with one another. A master plan for the bays that would take into account the preservation of our irreplaceable natural resources might be the answer. This master plan, of course, would have to be based on a thorough study, parts of which might be a study of studies already made and lying in

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someone's library gathering dust.

One of the questions we are exploring is whether or not more areas should be declared emergency areas and forced to up-date their sewerage facilities on the basis of Conservation Department studies done for the shellfish industries. The classification of waters demands waters equivalent to drinking water for shellfish. To allow primary treatment of wastes to go into these waters seems self-defeating. Individual areas within the proposed sewer districts are already under order to up-date their facilities and are thus exempt from referendum. What about other areas?

Finally, may we say that it has often been public pressure that has moved things along. The public must continue to demand enforcement of fair and equitable laws in the public interest. The League and other citizen groups in Suffolk County do have an interest. We hope that various agencies concerned will continue to inform us and utilize what has become a strong conservation movement in this county.

Thank you.

MR. STEIN: Thank you, Mrs. Sherard.

Do you have any questions, Mr. Klashman?

MR. KLASHMAN: No, except that I want to compliment

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you, Mrs. Sherard, on your very fine statement.

I enjoyed your poetry, "We've got a list of society offenders."

MR. METZLER: Well, I want to make a comment rather than ask you a question.

This is a very excellently prepared statement, and it is very constructive in nature. I like the specifics in it.

I must confess that I am a little embarrassed by your allusion to our pleading with polluters, but I also must be quite honest and say that is the way it has been in the past.

I want to tell you now that I believe that with the Pure Waters Program and the adequate basis of law which we have to back it up, this is no longer necessary. I want to assure you that it is the intention of the Health Department that we will do all the education we can, but we do not intend to do any more pleading.

We are in the business of cleaning up pollution, and we are going to get the job done, with all the support that you and many other people in New York are giving us.

MRS. SHERARD: That is very good to hear.

MR. STEIN: Thank you. You know, that part of your speech got me too.

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(Laughter.)

MRS. SHERARD: We citizens can say it. The hard workers are in the Health Department and the Conservation Department.

MR. STEIN: This may be true. I think Mr. Metzler and I are well known around the country, and I don't think we have reputations for being pleading enforcers.

Thank you.

MR. METZLER: The next statement is one that I had moved into the list that I gave you a minute ago, primarily because it seems to me we should have, at this point, some reference to the County Sewer Authority plans, and Mr. E. E. Henkel is here to make that presentation now.

Mr. Henkel.

STATEMENT OF E. E. HENKEL, REPRESENTING
THE SUFFOLK COUNTY SEWER AGENCY

MR. HENKEL: Thank you, Mr. Chairman.

Conferees, friends of sewage -- and I really hope that I am speaking truthfully when I say "friends of sewage," because if we don't have friends, I don't know when we will see an end to the pollution problem.

I have a 15-page statement which I will put into

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the record. It has two or three maps with it, one of which shows the various districts in the comprehensive sewerage plan, one showing industrial and the other showing human waste treatment facilities as they now exist.

MR. STEIN: May I look at the statement and see if we can incorporate the whole thing in the record?

MR. HENKEL: You may have it. I will be sending more copies.

MR. STEIN: Right.

MR. HENKEL: Obviously, we are not here to add more redundant statistics --

MR. STEIN: You meant 5 pages, didn't you?

MR. HENKEL: Yes, but I was having a joke.

MR. STEIN: All right. We will put the whole statement in the record, as if read.

MR. HENKEL: We wouldn't burden you with that many words.

MR. STEIN: All right.

MR. HENKEL: Nor do we want to get into more opinionated pleading. We are going to make a plea.

Really, listening to the other people here, I feel that we are little babies, you see.

The Suffolk County Sewer Agency celebrated its first birthday last week, but it has been and is accomplishing

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something. It has a fantastically large task.

Mr. Chairman, I could have entered into the record the study. It is only seven volumes, and it goes that far (indicating). I couldn't carry it, or I might have been tempted.

There are several points that I would like to make. We have the problem of building the sewers and sewage treatment plants. I think everyone else here has been telling how necessary this is, but, gentlemen, we have the job of doing it. We are assigned the task by the county of building these things.

Now, this could be fine if we could just go out and do this, but one thing arises. We must have a public vote to permit us to do it. This means the public has to vote to put its hands in its pockets and spend money.

It is not going to be easy to get this type of approval. I am sure you have heard of the costs of some of these projects. As the agency charged with doing something about it, and doing something about it at an expeditious rate, we say we must also consider feasibility, for if we mandate actions to the public which they will not accept, we will back where we have been over so many years -- all the years I have lived on Long Island -- with regulations not enforced, and probably because of public opposition,

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unenforceable.

You heard something earlier -- in fact, yesterday -- from Mr. Dennison, about the rate at which the sewerage systems will be coming eastward, and of studies for the eastern towns.

I make one point again: This is a good and sound and comprehensive plan. It will not happen if the public does not support the referendums which will be coming up probably early next year.

We have had references to \$58 million which the State has approved just last week for the first sewer district. This is not money which is given to us. This is money that is put there contingent upon (a) public approval in the referendum, and (b) proceeding with the sewer system.

I will close very quickly now. There are many, many friends out in this audience, people with whom we have worked. We are going to come up for referendums. We are going to need the support of the knowledgeable part of the public, the people who can look beyond the dollars that will go on their tax bill or their charge for sewer services, to help get across the very critical importance of this, and get across to the public too a very important thing: If we don't do it now, it will cost us more money next year.

Thank you.

E. E. Henkel

(The complete prepared statement of Mr. Henkel is as follows:

The problem of pollutants in the bay, their extent and sources, is being well covered by other agencies and citizens groups at this hearing. It is not the intent of the Suffolk Sewer Agency to pile on redundant statistics, add to opinionated discourses, or join in a chorus pointing fingers of blame. Suffice it to say that the agency, as an official body constituted by the County Board of Supervisors and bearing the board's charge to do something constructive about the entire pollution problem, recognizes the conditions in the bay and the merits of the arguments being presented for corrective action. We are here to add to the record information about what is being done, what is planned and, to the degree known at this date, state something of the time schedule.

In opening, speaking for the agency, I should like to remind all that if constructive action is to be accomplished, the problem must be studied with feasibility -- not just desirability -- in mind. Everyone agrees that it would be nice to have the bay waters under discussion here and all the rest of our waters, returned to the pristine state in which our early settlers found them 300 years ago. It is our hope that eventually we approximate such

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conditions.

But right now we must deal with conditions as they are and do our planning on the basis of what truly can be accomplished. Economics and genuine needs of the residents of Suffolk County do place some limitations on all of us dealing with the problem of pure water, be it pure groundwater for our domestic supply, clean streams and ponds or an uncontaminated bay. With this in mind, the Suffolk Sewer Agency -- which, incidentally, will celebrate its first birthday next week -- has been energetically at work on a comprehensive area which this conference was called to discuss.

Suffolk County, and local town bodies, have not been unaware or unconcerned with the dangers posed by contaminants entering our shore waters. Action is being taken. Chronologically, some of the more significant steps leading directly to this action are:

1. A study by the Suffolk County Department of Health entitled "Report on Need and Feasibility for Public Sewage Disposal Facilities in Western Suffolk County," submitted to the Board of Supervisors in 1962.

2. Funding, in August 1963, by the State of New York under Article 12, Section 1263-a of the

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Public Health Law, of a comprehensive sewage study for the five western towns encompassing the county's most densely populated areas.

3. Creation on September 27, 1965, of the Suffolk County Sewer Agency to carry out a program leading to sewage systems serving that area, and eventually, protection of the entire county.

4. Receipt a few days later (September 30) of the seven volume first interim report compiled by the engineering firm which had been engaged by the County Executive to conduct the State-funded study.

5. Determination early this year to proceed as rapidly as possible with the establishment of a Disposal District and water pollution control facility covering Babylon, and parts of Islip, Smithtown and Huntington. This was found to be the area where need for a sewage system was most urgent.

6. Completion in the very near future (in a matter of weeks) of the engineer's report on this district, to be known as Disposal District 1; reports from bonding consultants and other specialists on the financing methods proposed for

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the construction and operating costs. These are essential preliminaries to a public referendum.

7. Submission of the final plan to the voters of the district, tentatively scheduled for early next year.

8. Beginning of detailed construction plans early next year. Actual construction probably under way in a year and a half.

9. The authorizing of a comprehensive study, to begin soon, covering the eastern portion of the county.

It might be significant to point out here that much of Moriches Bay, all of Long Bay and all of Great South Bay within the county boundaries are in the area treated by the studies covering the five western towns.

The largest source of pollutants -- speaking generally and without reference to the localized problem under consideration -- is waste from residences. With the continuing increase in population, the amount of waste will rise almost in direct proportion to the growth in population and the consequential danger of pollution will increase commensurately.

While it is very obvious that we will not have sewers and treatment plants for all of the county on any

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immediate basis, the problem is not being neglected in the intervening period. In close cooperation with the Suffolk County Health Department, the Suffolk County Sewer Agency is requiring more carefully treatment of waste on the part of developers and industry. We firmly believe that we can slow down the rate at which pollutants are put into our groundwater, and hence into the streams and bays. Soon we may be reaching a static point where there is no further increase in the addition of pollutants. As the sewers are constructed, we will begin to see an actual reduction of pollutants entering our groundwater and shore waters.

As you can see from the accompanying maps, which are made a part of this submission, we are not waiting until we can get sewers into every area. We can look for a gradual improvement even earlier to result from our present efforts. In closing, let me add a few words with regard to the time scale.

Reverting to my opening discussion, feasibility is a determining factor. Nothing would be gained by mandating actions, however desirable, which cannot be accomplished. We have seen this demonstrated over and over again. With regard to feasibility, we must take into consideration the economic impact on the resident. If the burden is so large as to be unbearable, the voter, however

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sympathetic to conservation, will tell us he would rather bear the problems of pollution than the costs of our programs.

How fast we can proceed will be dependent, to a degree, on the availability of Federal and State funds. We are very pleased to report that just last week the Sewer Agency received official notice that \$58,000,000 has been committed by the State for District 1. This, of course, is contingent upon the actual establishment of the district, which must be approved by the voters.

We will be moving into other districts at an increasing rate as answers are found to the manifold difficulties inherent in a project as large as the one we are dealing with. The time at which the anticipated Federal support is forthcoming will have a strong bearing on the rate at which we progress.

The Suffolk County Sewer Agency appreciates the opportunity of participating in this hearing and offers its full cooperation to all constructive efforts which have as their objective the preservation of our water resources.)

(The map referred to will be
contained in the files of the
Department as an exhibit.)

E. H. Licht

MR. STEIN: Thank you, Mr. Henkel.

Are there any questions?

MR. METZLER: I don't believe I have any.

It is a very fine statement, and I particularly appreciate his reference to the need of intergovernmental cooperation here in order to solve the problem.

If there are no other questions, I would like to ask Mr. Emanuel Licht of the Feather Marketing Cooperative Association, to speak next.

May I suggest to the witnesses who follow, in order that the last witness has as good an audience and as good a receptivity as the first, and particularly so that we can ask questions on points that may be of interest to the conferees, I hope you can keep the statements relatively short and submit a full written statement to us, where that is appropriate. Certainly the full statement will be in the record. I think this may give you the best representation.

MR. STEIN: Thank you.

STATEMENT OF EMANUEL H. LICHT, REPRESENTING
THE FEATHER COOPERATIVE MARKETING ASSOCIATION

MR. LICHT: Mr. Stein, members of the panel:

I got my notice to appear here, in fact, early

Monday morning, and therefore did not prepare a written statement, but I will do the best that I can with what material I have on the subject that I am going to talk about, and furnish you with a record after this meeting is over. I will try to dictate a record at my office and mail it to you.

MR. METZLER: Very good.

MR. LICHT: However, for the meantime, I will give you two submissions that I have made on the subject before the Suffolk Board of Supervisors on October 23, 1961, and April 16, 1962.

I am going to talk on a subject which has nothing to do with politics. I can't defend and won't defend pollution, but I will and I must defend the duck-growing industry.

I want to take this opportunity to publicly thank Senator Robert F. Kennedy for helping me get the Department of Defense to accept all of the available surplus down and waterfowl feathers that President Kennedy -- God bless his soul -- and President Johnson released from the General Services Administration's revolving stockpile when I brought to the attention of the GSA that the Defense Department was letting contracts for sleeping bags with the contractor supplying the down. The inquiries on Senator

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Kennedy's part saved the Government millions of dollars. Since April 30th, more than 3 million pounds left the stockpile.

Usually, I keep this information confidential, but they had released it, so I am going to continue the release. The Government at this time has retained 2 million pounds of down and 1 million pounds of feathers.

The retention of the down, especially down, conclusively proves that it is still considered a strategic material not replaceable by any other commodity, in spite of two decades of research and the expenditure of more than \$1 million.

The quantity retained in the stockpile, plus the domestic production, of which Long Island is the major source, plus estimated manufacturers' inventory on hand, is what our Armed Forces must depend upon in the event of emergency, as they did during two wars.

The supply of this item is so limited that in both instances, the Government had to freeze all production to its sole use, and take possession of all inventories in the hands of manufacturers for the entire duration of two wars.

I am not going to burden you with figures, but state that the entire production of the United States would

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give us about 22 percent of 3 million pounds, or 660,000 pounds of down, of which the Island produces between 65 and 70 percent. It takes about 35 ounces of down and 17 ounces of feathers for one sleeping bag, and about 45 ounces of down for an Air Corps emergency kit sleeping bag.

Prior to the Korean War, the Quartermaster General's Office was persuaded by my pleading to prepare sleeping bags. I had asked for this, because I thought that we were going to get into a row with Russia. They were in production of 217,000 bags, when the retreat during the terrible winter weather took place at Korea. These bags saved the lives of tens of thousands of our men, and prevented thousands of amputations because of freezing.

The major portion of those bags was filled with the product of the duck farms of Long Island, because we had guaranteed to supply to the manufacturers or manufacturer who would get the contract. We did not renege on our obligations.

Mobilization or emergency planning depends on us, and if, God forbid, we are called upon, we will serve as we did before.

To make sure that the statements that I make cannot be refuted, I have asked various Departments of the Government at this very late date by wire to back me

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up, whether this situation is still imminent -- in other words, whether this is a critical item. The General Services Administration advised me Monday morning that it is.

So that you can go ahead and dream of your pleasures. In your affluent society, I note that there are always worriers like myself to take care of possible trouble before it happens. I did so in 1946 and 1947, and we were ready for Korea.

The Times on September 19th on Page 2 states that President Eisenhower said that he was prepared to act against China with limited nuclear warheads. This meant going northward. That calls for sleeping bags. He referred to our allies in NATO, urging and wanting him to be ready to act in some way, and in sticky situations we should use nuclear weapons. That means escalate northward.

Rest easy. The worriers are preparing, so we need down and must preserve the Long Island duck supply.

On August 12th, the Journal of Commerce had an item concerning this matter, which finally tied up the whole situation and leaves us with the problem --

MR. METZLER: Mr. Licht, may I interrupt you at this point?

MR. LICHT: Yes.

MR. METZLER: I think that the conferees would

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agree with your point here that feathers and down are a critical item.

MR. LICHT: Yes.

MR. METZLER: And we would be glad to have the documentation which you have offered here.

It seems to me that if you have some other points to make, I wish you would proceed to make them. If not, I for one, and you have me convinced, and I hope you might --

MR. LICHT: No, no.

MR. METZLER: I don't think you need any more documentation.

MR. LICHT: One more point.

If there were no Long Island duck raising industry, we would have to create one, because this is something that research and development has not been able to answer for over twenty years. It seems that that little bud on the undercoating of a duck known as down cannot be duplicated by any method of making fibers.

The reason why this is so necessary, this material, is that it can be compressed, can be used for the purpose needed, namely, to shelter the soldier under the conditions that I outlined, and we have to back up the Long Island duck raiser, and, as Senator Kennedy proposed, clear up the

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pollution.-- and you men are in the position to do it -- so that we can preserve this industry.

MR. METZLER: Well, I think you have made this point very well.

You started off by saying you would not apologize for pollution from the industry.

MR. LICHT: No.

MR. METZLER: And I say to you that the reason for this conference and what will grow out of it is to find out how this industry can live in the environment where it is, so we are all looking for a common goal.

We are not trying to chase an industry out of New York State, but I would say the same thing -- I am speaking now for the Pure Waters Program of the State of New York -- I would say the same thing to this industry that I told the pulp and paper manufacturers last week. They will have to clean up, and if that is the gist of your testimony, I couldn't agree with you more heartily.

MR. LICHT: Yes, but there is one thing that must be definitely known, that we can't take the judgment of a Mr. Dennison and say they have got to get out. They don't have to get out.

There are more important things that we have to take care of, and that is solve the problem of pollution and

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let them stay here.

MR. STEIN: Thank you.

MR. LICHT: Thank you.

MR. STEIN: Thank you, Mr. Licht.

You know, I myself am delighted, after spending at least a quarter of a century in Washington, finally to meet a genuine, honest-to-goodness feather merchant.

(laughter.)

MR. METZLER: Well, my education has increased a great deal this morning. I am appreciative to you, Mr. Licht, for giving me some of this background, which, frankly, is completely foreign to my previous experience.

(The documents referred to by
Mr. Licht will be contained
in the files of the Department
as exhibits.)

MR. METZLER: The next witness for the State of New York is Mr. Nelson D. Houck, the General Manager of the Long Island Duck Farmers Cooperative.

Mr. Houck.

STATEMENT OF NELSON D. HOUCK, GENERAL
MANAGER, LONG ISLAND DUCK FARMERS
COOPERATIVE, INC.

N. D. Houck

MR. HOUCK: Mr. Chairman, conferees, ladies and gentlemen:

My name is Nelson Houck and I am General Manager of the Long Island Duck Farmers Cooperative, Inc. At this hearing I represent all of the duck growers on Long Island, which grow approximately 7,500,000 ducklings per year. Long Island ducklings have been an industry for close to 100 years.

Our industry has recognized that part of the problem of pollution in our area which has come from the duck industry. Corrective steps that have been taken so far include the removal of ducks from the open natural waters and the effort to remove settleable solids by the use of lagoon systems on the individual farms. We found this does not solve the complete problem of pollution. We now know that secondary treatment and chlorination are required. To determine how this secondary treatment could be effectively handled, Suffolk County and the duck industry employed the Cosulich Company, an engineering firm, to conduct sampling programs, laboratory treatability studies, and to design a demonstration pilot plant for the treatment of the duck effluent.

As a result of these studies, a pilot plant was designed. A site has been selected, construction has started, and it is expected that the plant will be completed

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in one month. We believe that answers to the problem of secondary treatment will come from this plant. Reasonable time-tables for the solution of the problem have been established with the local and State health departments. The time, as well as the cooperation and the aid of local, State and Federal government is needed.

We must solve this problem, as the Long Island duck industry is basic to Suffolk County. The estimated total worth of the industry is over \$30 million. More than \$15 million of new money is brought into the county annually, and, of course, is handled over and over again. An estimated 1,500 unskilled and semi-skilled employees earn their livelihood in the duck industry. The effect of these factors should be considered before we talk of eliminating an industry, as was suggested here yesterday. Rather than eliminating any industries, we must save both the duck and the shellfish industries. We ask for technical and financial help from local, State and Federal government to this end.

MR. STEIN: Thank you, sir.

I wonder if you can help us very much by answering these questions.

Do I understand that you said a reasonable time schedule has been established by the State Health Department and the local departments? In other words, in the opinion

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of the industry, you think the requirements of the schedule given to you, as outlined in the orders of the New York State Health Department by Mr. Hennigan yesterday, are reasonable, as far as you are concerned?

MR. HOUCK: Well, we have already gotten started a bit late on the pilot plant, so we will have this problem, but, on the other hand, our intention is to find out what will happen in the pilot plant. We are hoping that we will not find too many bugs in it. We are hoping that we will find solutions that can be used much more broadly and with a combination of farms or tying in, as has been mentioned here, with metropolitan areas.

MR. STEIN: Let me rephrase the question.

You say reasonable time-tables for solution of the problems have been established with local and State health departments.

I listened with interest to what Mr. Robert Hennigan of the New York State Health Department said yesterday. He had time schedules for abatement of pollution from the duck farms, and specific requirements of what is needed, and this is substantially secondary treatment and chlorination.

Are you in agreement with the views of the Health Department on this?

MR. HOUCK: I will restate what I said, and that

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is that assuming that the pilot plant develops like we expect, they could be reasonable time schedules. Until we know what comes out of the pilot plant, it is impossible to make a definite statement.

MR. STEIN: All right. Thank you.

MR. METZLER: There are some things, on the other hand, that you can be doing at this stage, Mr. Houck, or, that is, your members can be doing.

As in any other industry, there is a great deal of clean-up, reduction of water usage, and so forth, all of these factors in the pollution abatement business.

Are your members aware of this, and what kind of steps are you taking to be sure that they are moving to reduce their waste load as much as they can, even before treatment?

MR. HOUCK: Well, our communication has been good, and I am sure they are all aware of the acuteness of this problem; and the industry voluntarily, something over a year ago, employed a man to go around to each duck farm each week to make sure that all regulations were being complied with and the lagoon systems were working and the effluent was going out into streams as well as they could do without secondary treatment.

MR. METZLER: There is one other matter, not only

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this pilot plant, but for the benefit of the conferees I would like to mention that prior to the actual calling of this hearing, New York was aware that this was a problem, and I had a feeling that perhaps someone who knew nothing about ducks, but knew something about some other kinds of waste treatment problems, might be helpful.

The State Health Department had assembled a couple of consultants for study. I realize again this is a problem that everyone and his brother has studied, but they have been here on their first visit, and their preliminary report offered some other possibilities other than those now under consideration.

We will be working with you very closely, not only in connection with financing and the operation of the pilot plant, but in exploring the ideas which this committee has developed.

MR. HOUCK: We appreciate any help you have.

MR. KLASHMAN: There are two questions that I would like to ask.

First, it is my understanding that there are one or two duck farms that are currently treating their wastes effectively. In other words, what they are doing, as I understand it, is settling their wastes and then using aerated lagoons, and then sterilizing the effluent. I

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understand this is effective.

Why can't the other farms do the same thing?

MR. HOUCK: Well, this all came about through Mr. Cosulich's study, and it has been started. As soon as we can get through this pilot plant and assure ourselves of not only the aeration, but the secondary treatment which we -- a year ago, we, in conjunction with Cornell University, had a test on a farm in the Eastport area in regard to chlorination, and this, we hope, will be incorporated in this pilot plant. There we learned a number of things, and in the laboratories they have learned a number of things. Each one of these will add to our total.

As you mentioned, aeration has taken place on one farm, but I doubt whether any large amount of secondary treatment has taken place.

MR. METZLER: I am not quite sure I understood you. Did you mean that in connection with this specific installation you weren't sure that it was actually providing secondary treatment?

MR. HOUCK: In what he refers to, the farm.

MR. METZLER: Well, this is the one with the lagoons and the three 15 horsepower aerators?

MR. HOUCK: Right.

MR. METZLER: Well, you are aware of the studies

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which we have made of this in the stream below, and that actually it is providing quite a high degree of secondary treatment.

MR. KLASHMAN: Then why do we need studies? What I don't understand is, if we have an installation that is working, why do we have to have more studies?

Why can't the farms just go ahead and put in installations that are very similar?

MR. HOUCK: I think in the next report here, Bill Cosulich's report will bring that out and clear it up for you. He is going to talk here, our engineer.

MR. KLASHMAN: I can appreciate your wanting professional engineering guidance here.

The other question that I would like to ask is, is any thought being given to utilizing, if you do need actually a pilot plant, which, frankly, I don't see at this point, but I am sure Mr. Cosulich's report will clarify that -- if you do indeed need a pilot plant, has any thought been given to utilizing the plant which has actually been built with Federal funds, and is now standing idle, to help the other duck farms? Has any thought been given to this?

MR. HOUCK: I am not acquainted well enough to answer your question.

MR. KLASHMAN: I would strongly recommend that

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thought be given to saving you money, and the State money, and perhaps utilizing this thing as a pilot plant.

MR. HOUCK: Well, each one of these things certainly should be looked into; there is no question.

MR. KLASHMAN: It seems to me that in order to meet the State's deadline, action, of course, has to be taken immediately.

MR. HOUCK: Right.

MR. KLASHMAN: I hope you are able to.

MR. STEIN: Why isn't that plant working? Do you know, Mr. Houck?

MR. HOUCK: No, I don't.

MR. KLASHMAN: Thank you very much.

MR. METZLER: Thank you. I think this is helpful.

May I change my mind in the order in which I am calling witnesses, for it seems to me that you have just opened the road for Mr. Cosulich. Perhaps, rather than putting him on at the end, this might be an appropriate time for him.

I hope those others of you who are shoved back one notch by this won't feel offended by it. I hope it will help.

Mr. William Cosulich is the consulting engineer, and he is from Syosset, New York.

W. F. Cosulich

STATEMENT OF WILLIAM F. COSULICH, CONSULTING
ENGINEER, SYOSSET, NEW YORK

MR. COSULICH: I would just like to describe the present pollution abatement program of the duck farmers, and briefly describe the pilot plant.

In 1965, Suffolk County and the duck growers jointly sponsored a laboratory scale study to determine a more suitable method of treating duck wastes. The study was aimed at methods of treatment that would effectively reduce organic pollution, nutrients and bacterial numbers. Both chemical and biological treatment processes were investigated.

Based on the results of the laboratory studies and cost studies, it was determined that the most suitable method of treating duck wastes is by means of aerated lagoons.

To confirm the results of the laboratory study, and to work out practical design details, a 50,000-gallon-per-day pilot scale aerated lagoon is being constructed at the DePiazzy farm in Moriches. The construction of the project is being financed entirely by the duck growers. The pilot plant is expected to be in operation in three to four weeks.

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A brief description of the pilot plant is as follows:

Fifty thousand gallons per day of duck wastes will be pumped to a 250,000-gallon aerated lagoon equipped with a 5 horsepower aerator. Microorganisms in the lagoon, which live on organic waste material, will effectively reduce the oxygen demand of the waste and convert the organic nitrogen to ammonia and nitrates.

Lime and calcium chloride will be added to the lagoon to precipitate phosphates.

The liquid effluent will be disinfected with chlorine, prior to discharge to Swift Stream.

The plant is expected to remove at least 90 percent of the solids, biochemical oxygen demand and phosphates from the wastes. Chlorination will control bacterial numbers to meet Health Department standards.

After several months' testing of the performance of the lagoon, plans will be prepared for full-scale waste treatment facilities. By April 30, 1968, all duck wastes on Long Island will be provided with effective waste treatment facilities.

MR. STEIN: As I read your statement, you believe that with this you can comply with the New York State order?

MR. COSULICH: Yes. Dwight Metzler knows,

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aerated lagoons are not anything new. They have been using them extensively in the food processing industry and other industries.

We know it will work. It is just a matter of how well it will work, and working out some of the practical design details. We are not afraid that we are starting out with something entirely new.

MR. STEIN: No. I wanted to say this to Mr. Houck before.

The conclusions that you have arrived at in the duck industry are the same conclusions, I think, that a lot of the other industries, not only in food processing, but the sugar beet industry and the pulp and paper industry, are arriving at the same way, because they have, in a large manner, the same problem in dealing with organic wastes. Just putting them in a lagoon and discharging won't do the job, and something like this is needed.

However, let me ask you this: When you talk about 50,000 gallons per day of duck wastes, you don't mean of wastes. You mean water, don't you?

MR. COSULICH: Water. Yes.

MR. STEIN: Well, how much water will you be treating when you say by April 30, 1968, all of it? How many gallons do you anticipate will be under treatment

W. F. Cosulich

by then?

MR. COSULICH: Well, just say we can get all the duck farmers to decrease their water uses. Most of them use too much water now. The first thing you have to do is educate them to using less water.

Assuming 10 gallons per duck -- it doesn't work out that way -- there are, I think, $3\frac{1}{2}$ million ducks per year grown in the Moriches area, but they are not all on the farm the whole summer. I forget how many crops they have over a summer, so there is a little arithmetic you have to do, but if I can do a little arithmetic --

MR. STEIN: Yes. We just want to get the magnitude of the number of gallons of water you are going to use, because that may affect the thinking here.

MR. COSULICH: It is around 556,000 ducks times 10.

MR. STEIN: Five million gallons?

MR. COSULICH: Five million.

MR. STEIN: All right. Now, on what do you base your notion that you are going to get rid of 90 percent of the phosphates?

MR. COSULICH: In the laboratory studies, by adjusting the pH and the ratio of calcium salts to phosphates of two to one, we got a 90 percent reduction, just by shoveling it right into the aerated lagoon.

W. F. Cosulich

This may not work as well in the field, but we are hopeful. We will do as good a job as possible.

MR. STEIN: I know, but this is a critical point.

If we are talking in terms of phosphates, I want to make this point. I know if you adjust the pH, you can get it, but this is the kind of operation that takes due care.

You know, if you can adjust the pH in swimming pools, you will have pretty clear swimming pools around here. Yet, if you go up and down and just look at your motels, you can see how well they have made that adjustment.

The difficulty is that that adjustment is made, and this is the kind of process we are using here. We are not going to get a reduction in the critical item, which is something that I think we have to recognize. This is one of the problems when we are dealing with chemical treatments.

Unless we are working under conditions that can produce this, the operation can change drastically. Unless run at optimum capacity, we are not going to get the reduction, because again, you figure the number of ducks you have -- and even if you take away 90 percent of the phosphates, the 10 percent that is left is not inconsiderable. We should keep that to the irreducible minimum.

W. F. Cosulich

MR. COSULICH: May I bring out just two points?

Listening to Dave Wallace yesterday, I am wondering whether some of these nutrients don't do the clams at least some good. He said that last year they got their biggest crop, so maybe a little bit of nutrients does help.

MR. STEIN: Don't do that.

(Laughter.)

You know, at one time people who were working with nuclear energy claimed that a bottle of aspirin was more dangerous, and they got into trouble.

Some of the detergent manufacturers told us we could use the detergents to trace pollution. I don't think the public reacted to that.

I think we should concentrate on keeping the phosphates out.

MR. COSULICH: Okay.

One other thing: I would like to answer Mr. Klashman's question when he wondered about the need for this pilot plant.

We made a survey of the various duck farms this spring to pick a farm for the pilot plant. The Corwin farm had a very large lagoon, which he chose on his own to put three mechanical aerators on. However, this is not a

W. F. Cosulich

typical farm. He has an eviscerating plant, and he pre-settles his wastes.

We wanted to pick a farm where we could set up this thing the way we thought this aerator lagoon should work, where we did not have presettling, where all the sludge would go through the aeration tank and be stablized, so that we would have a minimum amount of sludge to handle at the end of the process, and also a stabilized sludge.

This is why we are putting up an engineered pilot plant in Moriches, rather than using this one aerated plant in the Corwin farm.

MR. KLASHMAN: Thank you. You have partially answered my question.

May I ask another question? I notice that you do have a date. You say in your statement that by April 30, 1968, all the duck farms will actually have the wastes under control.

Could you give me some idea, or could you give us some idea of how you are going to meet the rest of the State schedule?

MR. COSULICH: Let me say this --

MR. KLASHMAN: Go ahead.

MR. COSULICH: The duck people themselves and the Health Department have not worked out some of these details.

W. F. Cosulich

We are going to have to sit down and work it out.

We want to see if there is any possibility of getting the towns or the county to cooperate as far as forming a district. The mechanics of this haven't all been worked out yet.

MR. KLASHMAN: Thank you very much.

MR. COSULICH: All right.

MR. STEIN: Thank you very much for your statement.

I think, and I say this advisedly, with an approach as we have had from the duck farmers and their engineers, I am satisfied that we can hit this problem. This is something that reasonable men can solve and settle, and I am very much encouraged after the testimony of the last two speakers.

Now a word about procedure.

We are going to try to go through until we hear all the people. After that, we will recess shortly, when the conferees will go into the rear room, and we will then come out and make an announcement.

I think I have a fairly good sense of this. I think we will be able to come out very shortly and make an announcement. Sometimes the conferees have to retire for the day, like a jury, but the situation is developing here so that I am pretty sure I can sense the consensus.

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How many more people do you have?

MR. METZLER: Six.

MR. STEIN: If you will all cooperate, we should have you out of here pretty soon.

Mr. Metzler?

MR. METZLER: Thank you, Mr. Stein.

Maurice Barbash, Chairman of the Citizens' Committee for the Fire Island National Seashore, is the next witness.

STATEMENT OF MAURICE BARBASH, CITIZENS'
COMMITTEE FOR THE FIRE ISLAND NATIONAL
SEASHORE

MR. BARBASH: Conferees and Mr. Chairman:

I am not going to attempt, after a day and a half of all of us listening to this testimony, to add any knowledge to the complexity of the situation in Great South Bay other than to say it is obvious, like the Musicman said, "We got trouble, terrible, terrible trouble, and it starts with "t" and it rhymes with "p," but this time it is not "pool" that is causing the trouble. It is pollution. This morning it was almost politics for a while.

(Laughter.)

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However, I think it is perfectly clear that we are dealing with a very complex situation, a delicate ecologically balanced mechanism here in Great South Bay. The problems are many and varied.

Unfortunately, the solutions that people propose sometimes are unilateral solutions -- open up an inlet here, an inlet there. Naturally, cleaning up and preventing the pollution from the duck farms is going to help considerably, but, as the Senator and others have pointed out, there are many, many problems, and possibly many, many solutions. We have to get, once and for all, if we are going to get any place here, a complete picture of what we have on the south shore of Long Island and Great South Bay and Moriches Bay.

Now, one of the greatest impediments that we have found to progress in solving this problem of keeping these waters clean is the numerous multiple overlapping jurisdictions which we find in Great South Bay. We have the towns that border the bay, Babylon, Islip, Brookhaven, Southampton, with their jurisdictional rights. We have the county, the County Department of Health, the County Public Works Department, with rights and jurisdictions in the bay. We have the State of New York, with the Long Island State Park Commission, the State Health Department, and the Department of Public Works, and now we have the national government

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with the Fire Island National Seashore, and also the Army Corps of Engineers, the Coast Guard. We are never going to solve the problem of keeping the Great South Bay in proper ecological balance for its multiple uses, unless we get all of these jurisdictions together.

Now, we have worked long enough with the government, since 1962, in our effort to create the Fire Island National Seashore, to realize that it is hard enough to get two agencies within the same Department to work together. It seems an almost impossible task to get all of these agencies on all levels of government together, but it can be done, because it has to be done, very simply.

What we propose is a merger of these overlapping jurisdictions into -- well, I guess you would call that a vertical combination. You could call the body the Great South Bay Conservation Commission.

We think this Commission should be weighted in favor of the local people to give them primary responsibility as they wish to exercise. We think it should include members of the State who have jurisdiction, and the Federal Government.

I am submitting our proposal for the record, Mr. Chairman.

MR. STEIN: Without objection, it will be incorporated in the record as if read.

(The document referred to is as follows:

GREAT SOUTH BAY CONSERVATION COMMISSION

Chapter 1. Findings and Declaration of Policy

1. The Legislature hereby finds and declares that the public interest in the Great South Bay is in its beneficial use for a variety of purposes; that the public has an interest in the Bay as one of the most valuable natural resources of an entire region, a resource that gives special character to the Bay area; that the Bay is a single body of water that can be used for many purposes, from conservation to planned development; and that the Bay operates as a delicate physical mechanism in which changes that affect one part of the Bay may also affect all other parts; and that it is a natural unit of rare and important values that should be preserved for itself and especially because of its intimate relationships with the Fire Island National Seashore. It is, therefore, declared to be in the public and home rule interest to create a politically-responsible, democratic process and mechanism of inter-governmental cooperation by which the Great South Bay and its wetlands, bay bottoms, estuaries, marine environment and shoreline can be analyzed, planned, regulated and

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preserved as a unit.

2. The Legislature further finds and declares that the present manner in which the Great South Bay is being polluted, filled, used and altered threatens the Bay and its marine environment, and is, therefore, inimical to the welfare of both present and future users and residents of the area surrounding the Bay; that while some individual projects and uses which affect the Bay resource may be necessary and desirable for the needs of the entire Bay Region, the fact remains that existing governmental mechanisms are not comprehensively coordinated to evaluate individual projects as to their total impact and effect on the entire Bay; and that further piecemeal filling, dredging, alteration, and uncoordinated use thereof may destroy the irreplaceable feeding and breeding grounds of fish, shellfish and wildlife in the Bay, may adversely affect the ecological balance of the Bay resource and quality of Bay waters, and would, therefore, be harmful to the needs of the present and future population and users of the Bay region, and may be detrimental to the use and enjoyment of the Fire Island National Seashore by the public.

3. The Legislature further finds and declares that in order to protect the public interest in the Great South Bay, a new approach involving intergovernmental

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cooperation between Federal, State and local governments is necessary, to be carried out by the Great South Bay Conservation Commission created by this act and comprised of representatives of Federal, State and local government, and the general public; that this approach, treating the entire Bay as a unit, should begin with a detailed study of all the characteristics of the Bay resource, including its conservation and recreation values, the quality, quantity and movement of Bay waters, the ecological balance of the Bay, and the economic interests in the Bay, including the economic needs of the users of the Bay; that the study should examine all present and proposed users of the Bay resource and its shoreline, and should give consideration to such master plans as have been or may be adopted by the towns and villages adjacent to the Bay or by any governmental entity doing planning for the Bay; and that the study should, without duplicating existing planning work relevant to the Great South Bay, lead to a comprehensive and enforceable master plan for the conservation of the Bay resource, its marine environment and shoreline.

4. The Legislature further finds and declares that in order, during the period of study leading to the comprehensive conservation plan referred to in Section 3 and until all hearings thereon have been concluded, to

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protect the present shoreline and body of the Great South Bay, its wetlands, bay bottoms, and marine environment, to the maximum extent possible, it is essential that the Commission be empowered, during such period, to issue or deny permits, after public hearings, for any proposed project, prior written notice of which shall be given to the Commission, that involves placing fill in the Bay or extracting submerged materials from the Bay, dredging or other public works or private projects that would have an adverse effect upon the Bay resource; the exercise of the powers by the Commission shall be judicially reviewable. The powers of the Commission shall be in addition to and not a substitute for those of local zoning bodies, units of government, or town trustees of Bay bottoms and submerged lands.

Chapter 2. Definition of Great South Bay

5. For the purposes of this title, the Great South Bay is defined as the inland waters from the western boundary line of the Town of Babylon, eastward to the eastern boundary line of the Town of Brookhaven, including the waters of Great South Bay, Fire Island Inlet, and

their tributaries, and includes its islands, and all adjacent wetlands, marshlands, tidelands, and submerged lands which are subject to tidal action, and the Bay bottom, itself, and all estuaries, creeks and canals which drain or empty into the Bay, and its shoreline as outlined in the map attached.

The definition of Great South Bay which is made by this section is merely for the purpose of prescribing the authority of the Commission which is created by this title. This definition shall not be construed to affect title to any land or to prescribe the boundaries of the Great South Bay for any purpose except the authority of the Commission created by this title. This definition of Great South Bay shall not preclude the Commission from studying the entire Great South Bay as an ecological unit.

Chapter 3. Great South Bay Conservation Commission

6. The Great South Bay Conservation Commission is hereby created. The Commission shall consist of members appointed as follows:

- a) One representative of the Department of Interior appointed by the Secretary of the Interior.
- b) One representative of the Department of Housing and Urban Development appointed by the Secretary of Housing and Urban Affairs.

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- c) One representative of the United States Army Corps of Engineers, appointed by the Division Engineer, United States Army Engineers.
- d) One representative of the United States Coast Guard, appointed by the Secretary of the Treasury.
- e) One representative of the New York State Conservation Department appointed by the Governor.
- f) One representative of the State Health Department appointed by the Governor.
- g) One representative of the New York State Department of Public Works appointed by the Governor.
- h) One representative of the Long Island State Park Commission appointed by the Governor.
- i) One representative of the Suffolk County Sewer Agency appointed by the County Executive, with the advice and consent of the Suffolk County Board of Supervisors.
- j) One representative of the Suffolk County Health Department appointed by the County Executive with the advice and consent of the Suffolk County Board of Supervisors.
- k) One representative of the Suffolk County Department of Public Works appointed by the County

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Executive with the advice and consent of the Suffolk County Board of Supervisors.

- l) Two representatives of the Town of Babylon, one of whom shall represent the villages adjacent to the Great South Bay, appointed by the Supervisor with the advice and consent of the Town Board.
- m) Two representatives of the Town of Brookhaven, one of whom shall represent the villages adjacent to the Great South Bay, appointed by the Supervisor with the advice and consent of the Town Board.
- n) Two representatives of the Town of Islip, one of whom shall represent the villages adjacent to the Great South Bay, appointed by the Supervisor with the advice and consent of the Town Board.
- o) One representative of the Town of Smithtown, appointed by the Supervisor with the advice and consent of the Town Board.
- p) One representative of the Town of Huntington, appointed by the Supervisor with the advice and consent of the Town Board.
- q) One representative of the Town of Southampton, appointed by the Supervisor with the advice and consent of the Town Board.

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- r) One representative of the Town of Southold, appointed by the Supervisor with the advice and consent of the Town Board.
- s) One representative of the Town of Easthampton, appointed by the Supervisor with the advice and consent of the Town Board.
- t) One representative of the Town of Shelter Island, appointed by the Supervisor with the advice and consent of the Town Board.
- u) One representative of the Town of Riverhead, appointed by the Supervisor with the advice and consent of the Town Board.
- v) Three members of the public at large, who are residents of Suffolk County, other than public officials, appointed by the Suffolk County Board of Supervisors.

7. The members of the Commission shall serve for such terms as may be specified by their respective appointing powers. The members shall serve without compensation, but each of the members shall be reimbursed for his necessary expenses incurred in the performance of his duties, except those members who are employed by Federal, State or local agencies and who are reimbursed for their expenses by their respective agencies.

8. (a) The Suffolk County Board of Supervisors shall select, from among representatives on the Commission of the public at large, appointed pursuant to Section 6, a chairman and a vice chairman, who shall not be representatives of any governmental body.

(b) The Commission may elect such other officials as may be necessary to carry out its business.

(c) No member of the Commission, who is otherwise a public official or employee, shall suffer forfeiture of his office or employment, or any loss or diminution in the rights and privileges appertaining thereto, by reason of membership on the Commission.

(d) Each member shall be entitled to one vote on all matters which may come before the Commission.

9. The time and place of the first meeting of the Commission shall be prescribed by the Board of Supervisors of Suffolk County, but in no event shall it be scheduled for a date later than 60 days after the effective date of this title.

10. The headquarters of the Commission shall be in the County of Suffolk.

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11. In carrying out its purposes, the Commission shall provide the leadership in developing a coordinative, comprehensive plan incorporating the best thinking of Federal, State, and local governmental and private plans, and it shall encourage and assist public and private agencies and persons to undertake projects and activities in accordance with the coordinative comprehensive plan. The Commission shall cause to be made a detailed study of all matters referred to in Section 3, including, but not limited to, the following:

A. Library Research

- a) compile and analyze all available results of studies made to date on oceanography, biology, social, and economic studies of the area as basis to fill in gaps in knowledge needed.
- b) prepare comprehensive bibliography from this material for future reference.

B. Geographical and Biological Studies

- a) delineate and plot all major ecological zones and their current conditions including areas dredged or filled.
- b) locate and chart all wildlife, shellfish, fin fish habitats for all major species.
- c) Locate and chart seasonal distribution of eelgrass and marine algae including main macro and micro species.

- d) locate and plot bottom types and characteristics.

C. Oceanographic Studies

- a) Current studies and seasonal distribution of salinity, nitrate, phosphate and other key chemical constituents in water.
- b) Degree of sewage and industrial pollution, sources, and their distribution.
- c) Remap bottom topography.

D. Current Uses

Recreation and Commercial Utilization

- a) Fish and Shellfish
- b) Hunting - waterfowl and rails
- c) Boating - private and commercial
- d) Swimming and other water recreation
- e) Aesthetic - bird-watching, nature study, other

E. Legislative Studies

- a) Existing legislation
- b) Recommended new legislation

and shall, upon the basis of such study, prepare a comprehensive and enforceable plan for the conservation and development of the Great South Bay resource.

12. In making its study, the Commission shall cooperate to the fullest extent possible with all Federal,

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State and local agencies and governments; and in preparing its comprehensive plan, the Commission shall, to the fullest extent possible, coordinate its planning for the Bay with planning for the land area surrounding the Bay by local agencies, which shall retain the responsibility for land use planning. In order to avoid duplication of work, the Commission shall make maximum use of data and information available from the planning departments and programs of Federal, State and local agencies and governments, and other public and private planning agencies, the Advisory Commission on Intergovernmental Relations, and the New York State Office of Local Government, and the various governments represented on the Commission shall cooperate to the fullest extent possible in making personnel available directly to the Commission.

13. The master plan which results from the study and action of the Commission shall, among other things, contain the following elements:

- a) Ways and means of conserving, protecting and wisely using the Bay and its natural resources.
- b) Methods of conserving, protecting and propagating the fish, shellfish and wildlife (including migratory birds which use such

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- area as their habitat, or for resting, feeding and spawning.)
- c) Ways and means of preserving the ecological balance of the Bay resource.
 - d) Ways and means of preventing, controlling and abating pollution of the Bay and encroachment of incompatible development and projects upon the Bay resource.
 - e) Recommended public acquisitions for conservation and recreation purposes.
 - f) Ways and means of developing and managing the Bay resource as a natural, economic and recreational asset, giving priority to conservation and recreation purposes.
 - g) Ways and means of strengthening and implementing the purposes of the Long Island Wetlands Act and all cooperative agreements thereunder and of all other existing Federal, State and local legislation designed to protect the Bay resource.
 - h) The feasibility of inlet and channel dredging as a means of combating Bay pollution, bearing in mind the necessity of

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avoiding the unnecessary destruction of Bay bottom, wetlands, shellfish and other natural resources of the Bay.

- i) The feasibility of the Great South Bay resource as a site for oceanographic and other marine studies.
- j) The formulation of programs which will qualify for assistance from Federal and State governments in planning, development, administration and use of the Bay and related resources, including, but not limited to, the following:

Water Quality Act of 1965

Land and Water Conservation Fund Act

Water Resources Act

Water Resources Planning Act - Federal
and State

Flood Control and Rivers and Harbors Act

Housing and Urban Development Act of 1965

Commercial Fisheries Research and Development Act of 1964

New York State Pure Waters Program

Fire Island National Seashore Act of 1964

Federal Water Pollution Control Act

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- k) Identification of the values and users of the Bay resource, the extent to which they conflict, the ways and means of eliminating or preventing conflict, the establishment of preferred benefits and priorities where conflicting use is unavoidable.
- 1) The formulation of a formal intergovernmental agreement concerning management and administration of the Great South Bay natural resource, which shall include appropriate Federal, State and local governments as parties, and which plan shall set forth the means of its implementation, enforcement, and continuing review and amendment, in the light of changing conditions or circumstances, and which plan will be so drawn as to serve as a demonstration project of cooperation between Federal, State and local governments in the solution of natural resource problems similar to that presented by the Great South Bay resource.
- m) The plan shall identify those areas of the Great South Bay, its wetlands, Bay bottoms and marine environment, which are already protected by public ownership, management or

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control. Nothing in the plan shall effect a transfer of title to such protected lands or waters, without the consent of their owners.

14. The master plan shall consist of a map and a statement describing it and a statement covering the objectives, principles and standards used to develop it.

- a) The Commission shall prepare this master plan within 2 years from the effective date of this act.
- b) Once the plan has been prepared, reasonable public notice shall be given concerning its proposals, and public hearings shall be held in Suffolk County and in each of the towns adjacent to the Bay, prior to the adoption of the plan by the Commission.
- c) The Commission shall adopt its plan within 3 months following the date of the final public hearing, which final hearing shall take place not later than 30 months from the effective date of this act.
- d) Upon adoption of the master plan, the Commission shall issue a public statement with suitable publicity thereto, including

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publication in at least two newspapers of daily circulation of Suffolk County, of the contents of the plan and its reasons for adopting same.

- e) Within 15 days after its adoption of the master plan, the Commission shall submit a copy of such plan to each of the authorities who have appointed representatives to the Commission. Each of the towns shall be required to hold public hearings on such plan after reasonable notice thereof to the population of each of said units of government, the first of such public hearings to be held no later than 30 days after the submission of such plan. The public hearings shall be concluded no later than 45 days from the date of submission of said plan.
- f) Upon adoption of said plan by all of the authorities mentioned herein, and upon its approval by Congress, if such approval is required to bind the Federal Government, it shall become binding upon them as a formal compact and agreement and shall supersede any plan or law inconsistent therewith insofar as

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same relates to the Great South Bay resource.

- g) The Commission shall have the power to extend any of the dates provided for herein for the giving of notice and the holding of public hearings regarding such plan.

15. During the period in which the comprehensive plan for Great South Bay is being formulated and until all hearings thereon have been concluded, for the purpose of protecting the present shoreline of the Great South Bay, its wetlands, Bay bottoms and marine environment, to the maximum extent possible, the Commission is empowered to issue or deny permits, after public hearings, for any proposed project, prior written notice of which shall be given to the Commission, that involves placing fill in the Bay or extracting submerged materials from the Bay, dredging or other public works or private projects that would have an adverse effect upon the Bay resource; the exercise of the powers by the Commission shall be judicially reviewable. The powers of the Commission shall be in addition to and not a substitute for those of local zoning bodies, units of government, or town trustees of Bay bottoms and submerged lands.

16. The Commission may:

- a) Accept grants, contributions, and

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appropriations from any public agency, private foundation, or individual.

- b) Appoint committees from its membership and appoint advisory committees from other interested public and private groups.
- c) Contract for or employ any professional services required by the Commission or for the performance of work and services which in its opinion cannot satisfactorily be performed by its officers and employees or by other Federal, State or local governmental agencies.
- d) Do any and all other things necessary to carry out the purposes of this title.

17. The Commission shall, in addition to any funds which the Legislature may appropriate for planning activities of the Commission, take whatever steps are necessary to attempt to obtain money available for such planning activities from any Federal, State or local sources.

18. The Commission shall appoint such executive directors and employees as may be necessary in order to carry out the function of the Commission.

19. Within a reasonable time, but not to exceed six months from the date of the first meeting of the

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Commission, the chairman of the Commission, in collaboration with and with the concurrence of the Commission, shall appoint a citizens' advisory committee to assist and advise the Commission in carrying out its functions. The advisory committee shall consist of not more than 20 members, nor less than 9 members.

The advisory committee shall also include representatives of conservation and recreation organizations, and at least one biologist, one geologist, one architect, one landscape architect, and one owner of privately held lands within the Great South Bay as defined in Section 5.

Chapter 5. Final Report and Termination of
Existence of the Commission.

20. The Commission shall file a progress report or reports with the Governor and the Legislature at such time or times as it shall deem suitable. A copy of the final report shall be submitted to all participating agencies.

21. The final report shall contain all the following:

- a) An accounting of its operations and proceedings and of its receipts and expenditures.
- b) The results of the detailed study made by the Commission.

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- c) The comprehensive plan adopted by the Commission for the conservation of the Great South Bay resources.
- d) The Commission's recommendation of the appropriate agency to maintain and carry out the comprehensive plan.
- e) The results of the Commission's submission of said plan for approval by the public authorities and units of government mentioned herein.
- f) The Commission's estimate of the approximate amount of money that will be necessary to maintain and carry out the comprehensive plan, including, but not limited to, the Commission's estimate of the approximate amount of money that will be necessary to purchase real property which the Commission may recommend to be purchased for public use, and an indication of the possible sources of money for such purposes, such as local bond funds, federal grants, state funds, funds from foundations, and funds from private subscription.
- g) Such other information and recommendations

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as the Commission deems desirable.

22. The existence of the Commission shall terminate on the 90th day after the final adjournment of the 1970 Regular Session of the Legislature, but such Commission shall have the power to extend its life for such additional period of time, not exceeding three years, as they may deem necessary to effectuate the purposes of this legislation.

23. The sum of \$250,000.00 is appropriated for the purpose of the Great South Bay Conservation Commission for expenditure for the support of the Commission during the first fiscal year.

24. If any provision of this act or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or applications of the act which can be given effect without the invalid provision or application, and to this end the provisions of this act are severable.)

MR. BARBASH: The proposal which I put before you outlines our thinking on this in full. We think this Commission should be funded, and then it should, first of all, complete an exhaustive study of what Great South Bay and Moriches Bay are from all respects.

There have been many fractional studies. You have referred to the Cosulich study. You have heard of the Woods Hole study. My library is full of studies, but nobody has ever put them on one table before and tried to correlate them to find out what they add up to as a whole picture.

Then they have to find out what the missing pieces are and fill in those missing pieces, and out of this study they must then evolve a resource management plan, to once and for all manage this great resource.

But then we go one step further, because we are tired of seeing plans wind up in bureaucratic desk drawers or wastepaper baskets. We provide in our plan a timetable for the implementation of these plans. We suggest that this Great South Bay resource management plan then be brought back to all levels of government, in particular the local level of government, and at public hearings discussed, and then voted upon and ratified, subscribed to by the levels of government, and that this plan then become the management plan for Great South Bay.

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Speaker after speaker after speaker has urged some sort of cooperative effort, but nobody has come forth with the mechanism. We need the mechanism, and we think the only intelligent mechanism is this Great South Bay Conservation Commission, combining all of the levels of government with jurisdiction now in the bay, and besides which it does something else. It provides us with the opportunity of taking advantage of all of the resources and expertise available on these various levels of government.

Our plan is the result of two years of work. We have reviewed it with members of the Interior Department. We have an endorsement of the concept of the plan from Secretary Udall. We have reviewed it in detail with Dr. Stanley Kane. We have reviewed it with our local supervisors, with our bi-county planning chairman, and with members of the State Department of Conservation, State Department of Public Health, and we have included suggestions from all of these people that we think were forthright and intelligent and pertinent to this plan.

I do hope that in your deliberations you will take due cognizance of the plan that is offered to you, and perhaps suggested as the proper mechanism for combining all the interested parties into one effort to solve these problems.

In conclusion, I wish to pledge that the Citizens' Committee for Fire Island National Seashore, still alive and kicking after its success in Fire Island, is now going to go out into the field and try to create enough public demand and pressure to assure the passage of this plan in the coming State legislative session, and while we do so, I pledge Gene Henkel our total cooperation in seeing that the public is fully informed as to the importance of a Suffolk County sewerage system here, and that we do hope that our efforts will help him get the referendum approved in February.

Thank you.

MR. STEIN: Thank you, Mr. Barbash.

Let me ask you a technical question here --

MR. BARBASH: Maybe I should get my counsel up here.

MR. STEIN: You might. I thought you might have been the counsel.

MR. BARBASH: No, I am not.

MR. STEIN: All right. You stay with this, but let me ask the question, because I think this goes to the heart of the matter.

I have the letter here from Secretary Udall.

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I do hope that in your deliberations you will take due cognizance of the plan that is offered to you, and perhaps suggested as the proper mechanism for combining all the interested parties into one effort to solve these problems.

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The question that I have here is that you are proposing a State law that has a lot of local people and State people on a commission, including a representative of the Department of the Interior, Housing and Urban Development, United States Corps of Engineers, and the Coast Guard, among others.

In Mr. Udall's operation, he is always in favor of intergovernmental cooperation, and particularly this one, as he said. I know he agrees with your purpose, and he put this down, but he says that Interior would participate within the limits of its legal capacity.

Later on, if you want this colloquy off the record, I would be glad to take it out of this record.

MR. BARBASH: No. It is quite all right.

MR. STEIN: Have you looked into this question of getting Federal participation on this commission, for Federal members, by a State law?

MR. BARBASH: Well, I think there is precedent in the San Francisco Bay legislation. I think they did set up a similar commission regarding San Francisco Bay, and they do have Federal participation. I don't think that needed an Act of the Congress.

However, we do provide in our suggestion that, if necessary, we will seek an Act of the Congress of the United

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States for this cooperation, but at this time it is not --

MR. STEIN: I think if you look at the others, you may find them going in on Federal participation on, what you might say in a legal sense, a voluntary basis.

We would always be glad to sit down with you people and in cooperation with the State agencies, but the question here is the one I have just mentioned.

Let me just read this:

"The Great South Bay Conservation Commission is hereby created. The Commission shall consist of members appointed as follows:

"One representative of the Department of Interior appointed by the Secretary of the Interior."

This is the State legislature giving the duty to the Secretary of the Interior to do this.

Now, as much as we cooperate with Dwight Metzler, I wonder, Dwight, if you saw me come up with a Federal law saying we are going to set up something and we want one man here to be a member appointed by the State Commissioner of Health, and this would be a Federal law and not a New York law, what you would say. I am just raising the question.

MR. BARBASH: Well, it does have precedents. I know it has been done in San Francisco Bay.

MR. STEIN: I just want to be sure that you have

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looked into this.

I am all in favor of your purposes. My job, among others, is to try to handle the legal problems with the least friction.

MR. BARBASH: Right.

MR. STEIN: I hope you have looked into it.

MR. BARBASH: I think we have, because the Interior Department's Legal Department has looked into it for us, and has reviewed the suggested legislation.

MR. STEIN: Yes, but let me read the letter again. The last sentence of the letter says this:

"Interior would participate within the limits of its legal capacity."

I don't think there is anything wrong with it. I would have written the same letter. I think it is a very fine letter.

But again, if you feel satisfied on this point, fine.

MR. BARBASH: Subsequent to that letter, the review was made by the Interior's Legal Department.

MR. STEIN: All right.

MR. METZLER: Well, this is a very constructive

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statement, and I am particularly pleased with the kind of leadership you are offering here. It is this kind of leadership we are going to need down here.

I don't think I have any questions to ask at this time.

MR. BARBASH: Thank you.

MR. METZLER: Thank you for your presentation, Mr. Barbash.

Hugh Mercer, General Manager of the Bluepoint Company, is the next witness for New York.

STATEMENT OF HUGH MERCER, GENERAL MANAGER,
BLUEPOINT COMPANY, INC., WEST SAYVILLE,
LONG ISLAND, NEW YORK

MR. MERCER: Mr. Stein, conferees, ladies and gentlemen:

I would like to place in the record abstracts to supplement my written report, as it were. However, I will not restrict myself to my written remarks. I can't. That is not my nature.

MR. STEIN: How long is your written statement?

MR. MERCER: My written statement, sir, might be five minutes. I believe much of this other material may be

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already available to the Commission.

MR. STEIN: We will include your statement as if read, and include the others as exhibits and make these available at our office to the State, but they won't be printed in full in the record.

MR. MERCER: I appreciate that, and that is perfectly fine.

MR. STEIN: All right.

(The documents referred to will
be contained in the files of the
Department as exhibits.)

MR. MERCER: My name is Hugh Mercer. I am with the Bluepoints Company in West Sayville. We are in the shellfish business, and we are used to dealing with uncertainty. There aren't very many of us left now, because lots of them were not used to dealing with uncertainty.

I say this because we have had a long-running interest in Great South Bay dating from the late 1800's.

Now, I take from my text here a quotation from the "Effective Use of the Sea," a nicely bound White House publication.

"A great public health problem is protein deficiency."

H. Mercer

"We recommend development of marine food resources."

"We recommend augmenting of food supply through marine agriculture."

Now, we and many others like us have been in marine agriculture for many, many years.

I think a very basic problem here that we must appreciate is that we have gone through considerations -- for example, let's bring it to a head. We have gone through a consideration of the loss of the shellfish in the immediate adjacent area to these tributaries. Is it two million? Is it a quarter of a million? Is it any million? I really don't care. It is a loss of shellfish, if it is only \$200. That is not the point.

Let me make a little point with you. What we are losing, if we condone the present pollution, is that we are losing an area that raises protein, has raised it, and will raise it. With some care it can be multiplied.

A figure of five bushels of hard clams per acre taken by mechanical methods was used as a measure in the area. We get at least 30, 40 or 50 bushels per acre. We won't go into that. It shows a change of method, but I merely indicate that by cultivation, through this so-called marine agriculture, there are great possibilities and

H. Mercer

potentialities in the sea bottom.

We have gradually, in our oceanographic studies, been getting around to recognize that this sea bottom we are talking about is estuarine sea bottom, not something off the continental shelf, where you have no control at all. We are talking, therefore, about a protein source, a food supply.

As far as we are concerned in Bluepoints Company, we are not directly affected by the coliform discharges from the duck farms. We are, however, affected by the indirect pollution, which has been dwelled on at some length here by Mr. Wallace and others, namely, that the undue nutriments -- quantity of nutriments -- put in the water at this point create obnoxious growths, which shellfish cannot accommodate themselves to.

Someone has, facetiously, I am sure, suggested that pollution should contribute as a food. We would be very happy if this resulted in certain kinds of foods and fattened up our oysters and clams, as it were. Unfortunately, the kind of plants that arise out of this form of pollution are not utilizable.

We have been following this problem of the so-called duck pollution since 1932, when Mr. Joseph Glancy of our company noted the peculiar coincidence between growth

H. Mercer

in Great South Bay and this fertilization.

I myself have participated at a number of lovely feasts that were held since 1951. The dinners were always very nice.

Now I think we will get right to the nub of the matter. We can draw certain conclusions from this.

What we have had here is an agricultural industry dependent upon public subsidy. The subsidy has not been codified in dollars and cents, because like in many rural agricultural and many rural industries, we don't think in terms of codifying it in dollars and cents. We are now beginning to do so and are realizing it is costing us something to get duck meat out at 79 cents a pound, or something like this. We have surrendered public resources to subsidize this industry. I make that point again, and it is as pure and simple as that. I will pursue that point in a minute.

The next point is this: We have thought in terms of ducks and clams up to now. Duck men, clam men -- wonderful -- all together in a farm bureau -- and we are all in the Farm Bureau. Unfortunately, we now have it certainly verified that ducks and clams cannot occupy the same geographic location. We are using the water for entirely different purposes, and one contradicts the other.

Unfortunately, I am put in a bad position, because

H. Mercer

my own conclusions will be construed as political. I do believe that if the duck farmers are left where they are, we are going to suffer continual diminishment in the shellfish industry in the loss of the protein source.

On the other hand, the duck farmers are not growing protein, and it is a crime in my mind as a farmer to see duck farmers eliminated.

Now, hold that for a minute.

We have had talk here, and this bothers me excessively. We are talking about increasing studies into waste disposal.

Now, we have made another point here. Duck wastes are like animal wastes, are like human wastes. There is no cheap way of reducing animal wastes. We don't bubble things through. If we can't throw little chemicals in it, it won't go away that easily.

I think that the study done on Long Island for human wastes points something out to you. It requires primary, secondary and tertiary treatment, in the sense that a discharge from the full, complete treatment of wastes is put into the Atlantic Ocean.

Why? Because we know that our local estuarine waters will not bear this surplus nutrifying, or whatever word you want to use. I am irritated, so I don't know.

H. Mercer

Now, the same thing goes down here. Here are these farms located in a very difficult -- pretend those were people discharging. They are humans discharging. What has the Suffolk County Health Department required? Primary, secondary and tertiary. These are animals putting wastes in the water. They will require primary, secondary and tertiary, and any engineer will tell you this is quite an expensive proposition.

Now, I know we are going to go ahead with pilot plants, and I know we are going to Albany, and I know we are going to Washington, and we are going to try to get dollars up. However, let's look at a little something here. Look at the location of those farms. It is impossible, really, without a great deal of cost, to pipe them all up together.

I have put to one side individual treatment plants run by the farmers. For heaven's sake, if they can't take a bulldozer and push up a lagoon, they are not going to run a sophisticated treatment plant without constant supervision. That is to one side. I think that is nonsense to consider.

Now, if you are going to put in a whole sewer system, you are talking about what? \$70 million? Who knows how many millions of dollars!

H. Mercer

Now, let's talk about this facetious proposal. Let's say the cost came to \$60 million. Maybe they ought to buy the duck industry out and that would take care of that. That is only worth \$30 million. I am being facetious, but I merely indicate before we pursue the pilot plant and before we aerate this, let's consider this very carefully. There are plenty of examples of what you can do with animal wastes.

Now, I feel this: I do not like to think that farms raising protein should be automatically eliminated in a world that is going to be starving to death in thirty years. That makes no sense.

Look at the location of those farms. They are in just the worst place in the world to process wastes. They are on marshland. They are on water.

I know this has been proposed before, and I bring it to your attention again. Many industries have moved and have done better. Isn't there a possibility that we could eliminate at least the tertiary aspect, which is, as was pointed out here, with carbon treatment, and so forth -- eliminate the tertiary aspect?

We are so sophisticated, and the difficulty really is by the subsidizing, because we are doing it anyway. We are subsidizing those farms. We are just talking of how

H. Mercer

much you want to subsidize them.

Move them and put them up in the middle of the Island. I remarked at one time, why don't we move them to the middle Island, and if we can grow fertile areas, and get something to remain alive here. Maybe these farms could be put in an area where we could use the lagoons, and the effluent could be used as a fertilizer.

I must insist that we stop and consider this blind business of "now, let's go to the next pilot plant." There are too many examples of what has to be done here.

Now, I just want to read to you my recommendations, and then I will stop, with only one more word, because I know you are all hungry and you want to hear the next person.

I have spoken to current pollution here. I want to speak to one other aspect of this thing. I am going to neglect the inlet discussion, because the inlet discussion for flushing can be reduced to ad absurdum. Remove Fire Island Barrier Beach and you will take care of the pollution problem. That is the ad absurdum of inlet discussion for pollution. Let's just forget that.

Let's talk now about sludge banks. We have a picture of the removal of sludge banks. This is not easy. I have participated in a little experiment watching sludge banks being removed last spring. It cost \$1.25 a cubic

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yard under the best circumstances, to remove it and put it in the ocean, where it must go, because we have had experience of just dumping it in the bay, and I figure that we lost \$100,000 in oysters last year from that experiment when that stuff came down and fertilized our oysters up to nice, black fin bladders.

I won't go into that. We don't cry in the shellfish business.

Now, it cost \$1.25 to move those sludge banks out of there and put them in the ocean. It cost a half a million dollars to move them up to a couple of those little triangles up there, of the type of seacup cove, and it is still there. It keeps falling in. Now, that is a half a million dollars in that little spot.

I would suggest that a great amount of thought be given to whether you want to talk about removing duck sludge. I would suggest for the minute the best thing to be done would be (1) stop adding to it, and (2) leave it alone. Don't go down there and try to dredge it and throw it up on lands and things. Let it cook there for a minute until we figure out some other way to do it.

I want to remind you there is plenty of evidence in other industries, such as strip mining in Pennsylvania and Kentucky, where there is this miserable business, but

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the public has to put up with it. I am afraid this is a miserable mess, and we are just going to have to bear the fact of industrialization or commercial activity.

Now, I believe, in view of the hard biological facts, that there should be orders demanding primary, secondary and tertiary treatment, and fines to be leveled on these several polluters ranging certainly up to \$500 a day. You have to enforce the thing.

There should be a period of one year's grace for completing and operating installations, during which time, obviously, the farmers will seek public subsidy.

If a public subsidy is granted, because we have been granting it all the time -- if it is granted, the farm must consent to removal from the waterfront. I think this is imperative. I don't think there is any other solution under the present arrangement, and, frankly -- well, let's not get frank about it. Since it is the phosphates and the nitrates that are the most expensive to remove, this move makes sense.

Now, pay the farmer an amount no greater than the social value of some other protein producer. Now, the agriculture on Long Island is getting a quarter of a million dollars. They get this year after year, and there is no difficulty.

H. Mercer

See to it that there is a financial subsidy. I think there should be a subsidy of the duck growers. They are a protein source. We have to have a limit or a ceiling on this, and that has got to be studied right now, because they are going to be coming around looking for money from the taxpayers of this State.

In no case should the subsidy be greater than the value of the industry.

Sludge areas must be surveyed. Some areas are irretrievable. At the present rate of \$1.25 per cubic yard, why, there has to be careful measurement of that massive expenditure.

Above all, decisions must be removed from the local authorities. At this stage of time, conservation and pollution clean-ups are at the same status as civil rights. We get a good kicking around when the Feds go home.

Thank you.

(The full prepared statement submitted by Mr. Mercer is as follows:

We in the shellfish business are used to dealing with uncertainty. We have all the risks inherent to nature and the unpredictables. We have lived with these and some few of us have survived. We say "few" since the number of persons and firms drawing a commercial living of any form

H. Mercer

from the sea in these United States is constantly declining.

Belatedly, the public is becoming aware of the consequences of this decline, for the decline in persons is reflected in the decline in production. At whatever figure one looks, no segment of American fisheries is producing today what it was even 20 years ago, much less what the potential might be as projected by such studies as embodied in the Report of the Panel on Oceanography in its "Effective Use of the Sea."

"A great public health problem is protein deficiency." - p. X

"We recommend development of marine food resources." - p. X

"We recommend...augmenting of food supply through marine agriculture." - p. II

Unfortunately, the Panel also notes that the marine environment and its promise is destroyed by pollution. It recommends intensification of control over pollution as to permit the utilization of marine food resources.

And there we are: As we noted, we can bear many risks, but even a seventy-five-year-old firm that has survived hurricanes, mass predation of starfish, encroachment of every sort of pest, that firm cannot survive uncontrolled pollution.

H. Mercer

Our specific case can be summed up quite simply. Since the early 1900's (say 1915) an agricultural industry, specifically duck ranching, has used the local salt water tributaries of Moriches and adjacent bays along the south shore of Long Island as catch basins for duck wastes and other discard materials. For many years and in many places, such a procedure has been considered normal.

As early as 1932, Mr. Joseph Glancy, associated with Bluepoints Company, noted that conditions of shellfish in Great South Bay, miles from Moriches Bay proper, varied directly with distinctive varieties of algae. He named the algae "small Form."

About 1947, Great South Bay became unusable for shellfish. Dank of color, filled with a wormlike growth, the Bay yielded an oyster thin and black-gilled, and eventually no oysters at all. Even the hard clam, a hardy brute, diminished in yield and quality until it was virtually impossible to market. This condition persisted for a season. Late in the year Mr. Glancy arranged for Dr. James B. Lackey to study the Bay. His views (see Abstract No. II) lead to the precedential and pioneering research of Woods Hole Oceanographic Institution. (See Abstract I). The project indicated that duck ranchers were not only directly polluting the local tributaries (a fact well corroborated

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by County Health Department studies and one's own nose) but were, in addition, responsible for the indirect secondary pollution of Great South Bay. For this extraordinary fertilization resulted in consequent deterioration of conditions necessary for shellfish welfare. (See "Conclusion" - No. III; excerpt from "Restoring the Quality of Our Environment.") The Reports are admirably utilized by Mr. Joseph Glancy in his own report, "Biological Benefits of Moriches Inlet...", J. B. Glancy, 3-30-56, Report to New York Corps of Engineers.

About 1949, New York State passed a Water Pollution Control Act. The consequences of current duck raising practices were so blatant that an abatement program was fastened upon the industry. A formal series of abatement steps or "phases" were drawn up. Originally, all four phases were to be completely in effect upon all ranches by the season of 1963. This has never been accomplished. Indeed, the "Status of the Treatment of Duck Wastes in Suffolk County - 1963 Season" (No. V) indicates the situation well. Only 18 of the 48 farms were operating phase one satisfactorily, and only a small proportion had installed the machinery for phase two. Resistance and non-compliance were rampant. The chronicle is only too poignant. The duck industry, itself, is well aware of its responsibility and action as

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indicated in its own "Report of Long Island Duck Farmers Co-op." 1965 - (see No. VI). And the Health Department of Suffolk County has acknowledge the morass (see Statement of H. W. David, Director of Environmental Health Service, 1963) - No. VII.

In the summer of 1965 there occurred an event which indicated the pollution problem was not simple. For some years natural factors had combined to hold back from Great South Bay the everpresent threat from the east. In July of 1965 we at West Sayville experienced in our shellfish hatchery the first massive larval mortality we had had in six years of operation. Despite every effort, we were unable to resume normal procedures. By August 10, 1965, it was obvious that "small form" had reappeared. Oysters and clams repeated the black gills and thin meat characteristic of the worst years between 1947-1952.

Casting about for explanations for the massive and completely unprecedented suddenness of the algal growth, we noted an interesting coincidence. The County of Suffolk in May of 1965 had commenced large-scale dredging operations in Tuthill Cove and Forge River of Moriches Bay. The dredged material which was predominantly duck sludge was deposited in large part in the Moriches Bay itself. (See Abstract No. VIII.)

H. Mercer

Dr. James Lackey in his "Rehabilitation of Great South Bay - 1951" had noted:

"...these procedures (for controlling current duck waste) would provide no immediate absolute relief in Great South Bay because of the deep sludge deposit in the Forge and Carmen Rivers. These will provide partial fertilization for some time to come..."

(See Abstract No. II, p. E.)

There was adequate suspicion to take exception to this dredging. Others had already taken exception because of esthetic and health reasons. Duck sludge is not only a far from satisfactory fill, but a remarkable nuisance. Plans were afoot to force the county to reroute any further spoil away from sensitive land areas and out of the Bay entirely. When the spring of 1966 arrived, the next massive dredging spoil was directed into the Atlantic Ocean. This year the hatchery has operated properly and nannchloris has been minimal.

A pioneering study of the latter dredging by the New York State Conservation Department and the Fish and Wildlife Service documents the remarkable flocculency of the dredge spoil when duck waste constitutes the bulk. The suspicion appears to be validated. Thus, we now have the

H. Mercer

problem not only of dealing with current pollution but with the black heritage of fifty years of waste dispersion -- a heritage being incremented every growing season.

The difficulties in the whole matter have been compounded by the fact that compliance to the present abatement program would probably obtain little abatement. This is adequately summed by a contrast of two statements:

"The result of this study...indicated that plain sedimentation would remove better than 90 percent of the settleable solids and would be accompanied by a reduction in the B.O.D., phosphate and nitrogen content of the wastes."

Investigation of Waste From Duck Farms in
Suffolk County

N. Y. State Department of Health - 1953
(Abstract No. IX)

"The sedimentation lagoons...presently used for waste treatment at Suffolk County duck farms are inadequate for effective pollution control. The units are only partially effective in removing settleable solids, and are not effective in removing Biochemical Oxygen Demand, nitrogen, phosphates and microorganisms."

H. Mercer

Treatment of Duck Wastes

Report of William F. Cosulich to County

Health Department 3/8/66

(Abstract No. X)

After 15 years of maneuvering, the problems are just as simple as they were in the beginning and perhaps just as far from solution:

- A. Animal wastes in wholesale quantities affect the quality of receiving waters. If quality is to be maintained, the animal waste must not be so discharged at all OR must be subjected to presently known and recommended techniques of organic reduction, namely primary, secondary and, in the case of sensitive receiving waters, tertiary sewage treatment.

A separate and distinct problem has, however, beclouded the whole issue and has resulted in the obviously Jerry-built, claptrap devices of abatement.

- B. An industry has long enjoyed a social subsidy, in the present case - reflected in the social cost of polluted waters and degraded environment, and loss of related resources including shellfish.

H. Mercer

Now an aroused public detects the social cost. Will that aroused public bear the financial cost of providing adequate and appropriate alternative to degraded waters - namely, a sewerage system for these few but filthy farms?

Or is it now that the cost that was seemingly intangible before when reflected in dollars and cents so high that the industry on net consideration is not worth the subsidy?

This conference is the forum to see if public representatives have reached the point of sufficient courage to answer these questions and, in answering them, set a precedent for the multitude of areas where the duck waste problem is a prototype. If they have not, then uncertainty of pollution will continue to reduce our fisheries; and, if they have not, their inaction makes a mockery of all the brave words that abound in "The Effective Use of the Sea."

Recommendations:

- I. In view of the hard biological facts, final and definitive and enforceable (\$500 a day fines) orders

H. Mercer

demanding primary, secondary and tertiary treatment be served on the several polluters immediately.

II. There be a period of one year grace for completed and operating installation during which time the farmers can attempt to secure a public subsidy.

III. Any public subsidy, if obtained, must:

- A. Remove the farm from the waterfront. Since it is the phosphates and nitrates that are most expensive to remove and are the culprits of the long-reaching pollution and it is open receiving waters most affected, this is a necessary provision to keep costs somewhat under control.
- B. Pay to the farm no amount greater than the net social value of a protein producer, i.e., if the same dollars can yield more protein in another source that is the limit.
- C. In no case be greater than the value of the industry.

H. Mercer

- IV. Sludge areas must be surveyed. Some areas are irretrievable. At the present rate of \$1.25 a cubic yard to remove to the Atlantic Ocean, where it must be put or great harm done to estuarine resources, there must be careful judgment about this massive expenditure.
- V. Above all, any decisions must be removed from the local authorities. At this stage of time conservation and pollution clean-up is in the same category as civil rights. They get a good kicking around when the Feds go home.)

MR. STEIN: Thank you.

Are there any comments or questions?

MR. METZLER: It seems to me he threw the challenge down to you.

(Laughter.)

MR. STEIN: Not to me. Mr. Mercer has been in my office in Washington. He hasn't changed a bit.

(Laughter.)

I think your points are very well taken and they will be given consideration.

I don't know if you want to prolong this, but we have a problem here. You have raised some very, very

salient and interesting points, but if you talk in terms of subsidy, subsidy by whom?

I have worked in the grants field, as you probably have guessed. We used to call this -- and I guess they still do -- the Ickes law of government. Harold Ickes, who was a former Secretary of the Interior, as you know, used to say any bright, young boy he had on the staff could develop a system of grants, but unless you could develop the system where you were going to cut the pie -- and in those days it was at least 48 different ways -- you weren't going to get it through the Congress.

The question here is, who is going to do it? What we are dealing with here, Mr. Mercer -- and I think we have to recognize it, and I hope you will, and I think Mr. Metzler has to recognize it -- is whatever we may think about an ultimate social solution to a problem, people like Mr. Metzler and I are here to enforce the law we have on the books.

We have to work within the scope and limitations of the powers and laws we have now, and even though we would like to come to some broader conclusions, we have to limit our horizons in the solutions we may come up with.

MR. MERCER: Yes.

MR. STEIN: But I can't disagree with what you say.

Thank you.

E. S. Furman

MR. MERCER: Thank you.

MR. METZLER: Mr. Furman is the next witness. He is the President of the Southampton Town Baymen's Association.

Mr. Furman.

STATEMENT OF EDWIN S. FURMAN, PRESIDENT,
SOUTHAMPTON TOWN BAYMEN'S ASSOCIATION, INC.

MR. FURMAN: I don't know what I can say after Mr. Mercer, and have much effect.

All I can say is that I have worked in this area all my life, from Babylon to Southampton, and I have seen what happens with these changes -- new inlets, no inlets, inlets reopened.

I did have an exhibit here, but some reporters walked off with it, and I can't find it now, which I wanted to give you.

Off the record.

(Discussion off the record.)

MR. FURMAN: Anyway, it was some clams which were killed recently, this summer, due to the excessive grass growth in Moriches Bay, which we have been told by scientists results from these phosphates and things that are brought down with the pollution.

E. S. Furman

I would like to show you here on the map where they were killed. They were taken right off this area here (indicating).

MR. STEIN: Why don't you describe it? That is a little inland from Westhampton Beach.

MR. FURMAN: The eastern end of this district, the Westhampton Beach Bay. There are probably several hundred acres in here where there was so much grass, we couldn't work. It is opposite South Beaver Dam Creek. In all that area, we couldn't work all summer because of this grass growth, and now, when we begin to try it, 50 percent of those clams are dead over a lot of that area.

Mr. Wallace yesterday gave us a figure of five bushels per acre from this area. I would like to point out practically all our production in the summer comes from this area (indicating) --

MR. STEIN: You see, the difficulty is the record will not show what it is. Describe it, please.

MR. FURMAN: From the West Bay Bridge to Gunning Point. You compare that with the rest of the bay. Practically all the production comes from that area during the summer.

Our soft clam production is restricted entirely during the summer. They are produced over here on the

E. S. Furman

north shore, where it is condemned for six months of a year at a time when we need those soft clams. We have a market for them locally at a good price.

When it is opened the first of November, most of them have to be shipped to the market, where you compete with the Maryland clams, and you get very little for them.

Mr. Mercer spoke about the solution to the inlets, more and bigger inlets, a little bit drastically, I think, but we know that is not going to happen, so we have to deal with the inlets.

There has been a lot of agitation to improving Moriches Inlet. That is all to the good, but the more you open these inlets, the more it pushes the hard clam production back into these polluted areas, where you can't work them.

Now, this area I pointed out is as far as you can get away from Moriches Inlet and Moriches Bay. You will notice that.

If you open up the inlet, let's say you double the flow of water coming through there, you are going to have less hard clam production, simply because you are going to bring in mussels and starfish, and there is very little market for mussels. I don't believe two men could make a living continuously on mussels if you had all of

E. S. Furman

the bay.

The same thing goes for South Bay. If you put a new inlet in there, you would eliminate thousands of acres of hard clam production, the area producing hard clams now.

MR. STEIN: Let me ask you a question on that, just because I think you have arrived at a crucial point here, at least in my own mind.

The way I understood the proposition on these inlets, there is always a problem, I know, whenever you are talking about dredging or opening inlets or closing them. You get various pulls from different water interests, but, as I understood this, this would require some delicate management of the equilibrium of the salt that you are getting inside.

If opening these is going to be deleterious to the shellfish industry, obviously I don't think this is going to be good, but I think some of the proponents of stabilizing those inlets had the notion that if the inlets are stabilized, rather than it being deleterious to the shellfish industry, it is going to help.

Now, I think we should try to at least arrive at a technical resolution of this. I don't know that there

E. S. Furman

are absolute differences. My opinion in a pollution case is that we are dealing with physical facts. Sometimes they are hard to find, and sometimes they are hard to measure.

Also, I believe that since we are dealing with physical facts, we can get all reasonable people to agree what those facts are if we take the time to do this right.

The point is, I think this is the kind of physical facts on the water coming through the inlets, and, at least the stabilization of these inlets that everyone could agree on -- at least, what is going to happen.

This should be Dave Wallace; it should be the State Health Department, the duck growers, the oyster growers, and the Federal people. There should not be any conflict.

The problem I have is this: Before we can make a determination on what position to take on this, we certainly should make every effort to see if we can get agreement on the facts on these inlets.

MR. FURMAN: Well, I have a suggestion here that has not been brought out at all, to my knowledge.

As far as Moriches Inlet and Shinnecock Inlet go, I think they should be controlled.

Now, the Army Engineers brought out a plan last fall, just such a plan, up at Jones and East Rockaway

E. S. Furman

Inlets. There are gates.

At times, the bay would be much better off if that were closed off temporarily -- I mean, in such a way that the storm tide comes in maybe -- but closed off at a time when it gets too high. If it is near hard clam setting time, you could regulate it with these gates, and they could be regulated and adjusted so that they would allow the ebb tide to flow at all times. You would eliminate a lot of the influx of the tremendous amount of sand.

Look at that map. All of that sand is washed into Moriches Inlet at storm time.

MR. STEIN: As I understand you, Mr. Furman, you have no objection to controlled inlets?

MR. FURMAN: I would like to see controlled inlets.

MR. STEIN: I hope we are all saying the same thing, and we are not very far apart.

By the way, I think we have a parallel here of what we are running into in almost every river in the United States, and we are just getting this in the coves.

Today, then, we have free-flowing rivers, at least in our major rivers and the ones that we don't designate under our wild rivers in the interior are few and far between, because we are damming and having channels put on all our rivers. The sad commentary is that it has required

E. S. Furman

catastrophe after catastrophe for us to recognize this before we take action. I hope we won't have it here.

Just look at the Mississippi. I am sure a lot of the people in this room can remember the twenties. How many floods did we have to have up and down the Mississippi and the Missouri before we recognized we had to have those dams and other methods of flood control?

This is the kind of thing that we may very well be talking about in terms of when we are talking about the inlets. I think if we can get away from this notion of dredging, non-dredging, open and non-open, but if we could use possibly the formulation that Mr. Furman has talked about of controlled inlets so that we will have conditions which we all can agree, at least in a scientific sense, will be helpful to the maximum number of water uses for the shellfish, and protect the inside, maybe we can move forward.

I think a lot of this clash may come because we are not ready to use the same words for what we mean and arrive at agreement.

As far as I can understand you now, I think we are pretty much in agreement.

MR. FURMAN: Perhaps you will want to look at that.

MR. STEIN: Thank you. Do you want to continue?

E. S. Furman

MR. FURMAN: Just to say that I would like to agree with Mr. Mercer.

I think the only solution for the duck farms is to get off of tide water. I don't see how you are going to clean up the situation otherwise.

Certainly, one thing is sure. No matter how many inlets you put through there, you are not going to flush that bay any more than Planter's Bay is flushed naturally.

MR. STEIN: Let me again give you something that is embodied in our law, and something else.

I don't think the purpose of controlling inlets or the control or release of water on a dam in Federal policy -- and I am sure the States see eye to eye on this -- is any substitute, or can be any substitute for controlling pollution at its source.

The question here is that even if you control pollution at its source, you may have to control the flow of water to achieve optimum conditions for the purposes that you want to use that water for.

No one is proposing to let anyone, whether it is any industry or any municipality, dump wastes in and use some kind of a public works device to just flush it out. The point here is even if we get proper treatment at the source, we may still need to control the inlets for maximum

E. S. Furman

purposes. That is the only thing.

I don't think we would go for that in the recommendations. I don't think the Corps of Engineers would entertain the project on any other basis either.

MR. FURMAN: All right. Thank you.

MR. STEIN: Thank you.

MR. METZLER: Thank you, Mr. Furman, for a very constructive statement.

The next witness is Dr. George Vanderborgh of the Oyster Institute of North America.

Dr. Vanderborgh.

STATEMENT OF DR. GEORGE H. VANDERBORGH, SR.,
REPRESENTING THE OYSTER INSTITUTE OF NORTH
AMERICA AND THE LONG ISLAND SHELLFISH
FARMERS, INC.

DR. VANDERBORGH: Mr. Stein, members of the panel, ladies and gentlemen:

I think we have reached the point where not much new can be said, and therefore I will just take a very few excerpts from the things I had to present.

My name is George H. Vanderborgh, Sr., and I am speaking as a representative of the Oyster Institute of

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North America, and the Long Island Shellfish Farmers, Inc.

The quality of the waters in which shellfish feed and grow determines the fatness of glycogen content as well as their marketability.

Pollution in its broad term includes over-fertilization caused by algal blooms, termed nutrient pollution, as well as that which is caused by harmful bacteria. The former causes the shellfish to be unsalable; the latter renders shellfish impure. Over-fertilization is caused by the over-abundance of nutrients such as nitrogen and phosphorus and is a primary concern to the shellfish farmer. The duck farms have positively been recognized as the source of this over-abundance.

A tremendous amount of damage is done by water-borne predators such as starfish and drills, residents of the bottoms and waters which transport them.

Shortly after the end of World War II, the shellfish farming production in our area was at an all-time low, almost nonexistent. A few determined shellfish farmers, together with local town officials from Islip and Brookhaven, and representatives from the New York State Conservation Department, planned a biological study program to determine the cause of curtailed shellfish production in Great South Bay, and to recommend remedies and cures.

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The Woods Hole Oceanographic Institution, which you have heard mentioned many times, was retained by this group to do a detailed study of Great South Bay. The unanimous conclusion reached was that the over-fertilization of the waters caused by the duck farm wastes, combined with a peculiar water circulation pattern, caused a bloom of small plankton algae, called Nannochloris, of over five million per c.c. of water, which was the chief deterrent of shellfish production in the bay.

Without going any further, among the recommendations made were:

1. Elimination of duck farm wastes entering the waters.

As one or two speakers have said before, that might mean removal of the duck farms from where they operate now.

2. Construction of a tidewater gate at Smith's Point to curtail the flow of duck wastes from Moriches Bay to Great South Bay.

3. The dredging of Moriches Inlet to allow the duck wastes to flow out into the Atlantic Ocean, immediately to the south, rather than to flow westward into Great South Bay.

The positive way to eliminate duck wastes

Dr. G. H. Vanderborgh, Sr.

from entering the waters is to remove them at the source, namely, the duck farms.

Also, dredging of the inlets is a continuing necessity.

Only after these things have been accomplished will we be ready for further developments of the resources of the sea through laboratory propagation and marine farming.

Thank you.

MR. STEIN: Thank you, Mr. Vanderborgh.

Are there any questions or comments?

MR. METZLER: May I ask a single question here?

Would you have an opinion on this business that we have been hearing discussed about flushing action and more inlets into the Moriches Bay?

DR. VANDERBORGH: I think we need the flushing action of the inlets, especially those of Moriches and Fire Island.

I would recommend, however, rather than Fire Island on the improved inlet, to move it about five miles to our west here, because you need deep water on both sides of an inlet, and if the inlet were placed somewhere near Fire Island Lighthouse, we would have deep water in the bay side and deep water on the ocean side, and it would be self-cleansing.

Dr. G. H. Vanderborgh, Sr.

MR. METZLER: Thank you very much for a very helpful statement.

MR. STEIN: Thank you.

MR. METZLER: The next witness is Mr. Adrian Hoek of the Great South Bay Baymen's Association.

STATEMENT OF ADRIAN HOEK, REPRESENTING THE
GREAT SOUTH BAY BAYMEN'S ASSOCIATION

MR. HOEK: Mr. Chairman, members of the panel:

I have no written statement. I have been a silent listener here for a day and a half.

You have heard Mr. Mercer speak. Mr. Mercer and I have worked hand in hand, and what he said today and the statements that he has presented to you, I okay. We have worked together for years. I am on the Pollution Committee with Mr. Mercer, and we thoroughly understand one another.

As a silent listener, I hope not, but I believe that the industry really yesterday and today got a little blow below the belt. I hope not. I hope the press doesn't elaborate on this. I hope it doesn't come out with glaring letters.

Our bay is not as bad as has been pointed out. Don't think that. There are polluted areas, as the map

A. Hoek

shows, but in the areas where the water is pure the clams are very good.

I have followed this bay since I was nine years old. I am now sixty-five. I have eaten clams all my life, and I can still do a good day's work.

With regard to the inlets, when I hear some people talk about a new inlet I shudder, because who knows what a new inlet, especially an inlet off Patchogue, would do to our bay.

We know what happened in Shinnecock. The men down in that way tell me that acres and acres of land that were productive at one time are now ruined by Shinnecock Inlet.

Moriches Inlet? Of course, we need Moriches Inlet, but we only need Moriches Inlet as a flushing inlet. We don't want to make that navigable.

In 1931, I believe, Moriches Inlet was formed. By 1938, with the great amount of water coming down through Moriches Inlet, I was told -- I don't know if it is true -- that the duck pollution by the tides from Moriches Inlet driven into the bays off Patchogue ruined our oyster industry. There was a little worm that came along and built its house on the oyster, and eventually it grew over the bill of the oyster, and all our oysters were lost.

A. Hoek

Now Mother Nature has given us another good set of oysters in this bay off Patchogue that I am talking about, so let's not disturb Moriches Inlet too much. Just let it be a flushing inlet and let's save what Mother Nature has put there right now.

I have another gripe. I represent, I would say, over 2,000 baymen. We feel as though the National Seashore is not too much of an asset for us. We have met with the Committee for the National Seashore. They have told us that in the future, as they need land under water, they will acquire it.

Up until this point they have acquired some land. In Sailor's Haven they have taken a thousand feet east and west, a thousand feet off shore. They have stopped us from working in that area. That area is heavily populated with clams. I know men that have caught 12 to 20 bushels of clams a day, little necks, in that area.

Clams are sold today for \$13 a bushel, so you realize what that means to us fellows that work by the sweat of our brow. That is a big thing.

Now, I understand Mr. Barbash -- I was silently listening this morning -- Mr. Barbash, who represents the Seashore, wants more power.

In the years to come, can't you see that eventually

A. Hoek

they will take more land and more land, and by taking more land they are eliminating our area to work? I understand that they can take a mile-long shore. Our bay is only five miles wide. At the widest part, our bay is only five miles wide.

In a lot of our bay, there are areas that are absolutely mud, unproductive, with nothing growing in it, and we have a very small area to work in; so if the National Seashore is going to take that attitude and stop us clam diggers from working in these areas that they take over, which eventually anyone can see that they are going to make this a recreation center -- anyone can see that. We see that. That is coming, and if they are going to keep squeezing us out, we will have to go on relief.

We are proud. During the depression I worked for ten hours a day for a dollar and a half. We are proud of ourselves. We don't want to go on relief. We are the salt of the earth, but if these things keep on, we are absolutely going to be squeezed out.

Another facet as to the inlets. Mr. Vanderborgh suggested that the inlet be placed further east. I agree with him. That inlet should be by the lighthouse, just west of the lighthouse. There is, I would say, 25 to 30 feet of water inside.

A. Hoek

The only way to maintain a good inlet is to have deep water inside. That is why Moriches Inlet will never be a navigable inlet, because there are acres and acres of land at the ebb tide that you and I can walk on with our shoes. It absolutely runs dry. But at the lighthouse, it is a very good place to place an inlet. There you have the west channel and you have the east channel that are entering the bay, and the ocean would have no trouble whatsoever to enter and cleanse our bays.

This is all I have to offer, fellows, but I shudder -- I will say again I shudder when I hear of a new inlet off Patchogue.

Thank you.

MR. STEIN: Thank you, Mr. Hoek.

Are there any questions or comments?

MR. METZLER: I don't believe there are.

We are grateful to you for bringing a slightly different point of view, however, than we have heard before, Mr. Hoek, and I appreciate your presentation. We will consider this carefully. Your experience between age nine and age sixty-five is not to be taken lightly.

MR. HOEK: I have followed the bay all my life.

Thank you.

MR. METZLER: Is Mr. Robert Vojvoda here? This

R. Vojvoda

is the last witness we have, Mr. Robert Vojvoda, who is the Supervisor from Riverhead.

Mr. Vojvoda.

STATEMENT OF ROBERT VOJVODA, SUPERVISOR,
TOWN OF RIVERHEAD

MR. VOJVODA: Mr. Chairman, members of the panel:

Before starting, I want to make sure that as an east-ender, Charlie Dominy doesn't mind me coming into the west end and having a few words this morning.

Charlie, is it all right?

MR. DOMINY: Don't say too much.

(Laughter.)

MR. VOJVODA: All right. I promise to keep it short.

Sitting in the background, what I saw happen here today is something that happened in Riverhead two or three years ago, and I am just hopeful that you can come out of this meeting today with the same things that we had come out of ours, but I am afraid we are going to come out of this with the same old story.

We are going to have selfish interests. We are going to fight one another and never sit around at a round

R. Vojvoda

table and come to some answers. If this happens, this meeting is useless.

I want to give you an idea of what happened in Riverhead. In the Town Board, we had mothers, we had people come in with dead ducks in their hands, saying, "What are we going to do about it? What are we going to do about it?"

Naturally, as the Supervisor, I went to the duck farmers. I found that for over fifteen years, there has been a lot of publicity about this, but no one had ever sat down and talked with the duck farmers. The papers gave them hell. The politicians gave them hell. The housewives gave them hell. The poor duck farmers were told by the State Health Department to try this, try that, but they weren't given any answers.

I am chairman of a committee and I asked for people who wanted to be workers. I came up with a committee, and you have seen the results of our survey.

The duck farmers have been one of the most cooperative industries that I have had the pleasure of working with. Possibly many people would say I should not say that, because there are a lot of people that aren't duck farmers, but I wish I could get the same cooperation out of the public when we have a problem.

I think we have answered the problem. I think we

R. Vojvoda

do have the answer. Let's face it.

I want to give you an idea of what happens when you do correct some of the other problems.

Riverhead only had three or four creeks, and we had eighteen or twenty feet of duck manure lying in them for thirty and forty years, and they would bubble, and houses would lose their colors. They changed from white to yellow.

We didn't have the problem with the conservationists because Mr. Wallace was very helpful in my town. We obtained the necessary permits. We did a lot of dredging in Riverhead, and we have a little more going on.

We did have some clams in these creeks which we wanted to move. We arranged to transport these into good waters and protected them. We have moved 1,800 bushels that the Town of Riverhead put up the money for. We kept them six weeks and had a bay constable watching them.

Lo and behold, what happened when we opened them up? The commercial interests cleaned them out in a couple of weeks, and we did not get anything. The people of Riverhead did not get a chance to use the clams that we paid the money to transport. The same thing happened with soft clams. They cleaned them out.

So, you have to get the fishing industries as well as the duck interests, as well as everyone, working

R. Vojvoda

together on this. You cannot have one interest hollering that we want to safeguard the clams and everything else, because Riverhead is not going to move any more clams in the Town of Riverhead until the Conservation Department or someone gives us control over the clams that we transport. That is the only way the Town of Riverhead will spend any more money transporting clams.

And, believe it or not, where we have the biggest abundance of clams is in the highly polluted area in the mouths of the creeks from the duck farms. They are so thick that when the dredge went in there, the dredge had approximately six to eight inches side boards, and that dredge brought them up so thick that they were falling off the sides of the dredges. Mr. Wallace was surprised, and I was surprised.

We still have thousands and thousands of bushels sitting in there, but as long as I am the Supervisor of Riverhead and I have the same Town Board, we will never bring another bushel because of what happened when we did move them.

I just bring this out, because I know the fish men are going to holler and say I am wrong. The duck farmers did this with me, but we sat down at a table and we solved our problems.

R. Vojvoda

Let's not holler at each other, but let's sit down in one room, and everybody give a little bit, because you are going to have to.

If you are not going to sit down and give a little bit, you are dead. Forget your problem right now.

The duck farmers today really caught hell, and I will tell you why. There is another thing. What about boats? Let's not kid ourselves. I have a boat and I have four kids, and they love soda, pop corn and cracker-jacks, and, believe me, when I go on the bay, when they drink soda, it's back and forth to the head all day.

You look at the number of boats in our bays. Something has got to be done with the boating industry. It is one of those things that politicians and people don't like to admit, but unless you take the bull by the horns, you are still going to end up with the problem.

Last, but not least, what about detergents? Don't kid yourself.

We have a bad area along the Peconic Bay. We have an area of homes where they can put down three or four wells a year. It is not the duck pollution that is the problem; it is the detergent problem.

The sooner Long Island and the politicians and New York State take the bull by the horns, and ban detergents

R. Vojvoda

in this State or on Long Island alone, the sooner you are going to get rid of another problem. I know you have powerful lobbies, but I think there have been a few States in the West that have banned detergents, and I give them a lot of credit for it.

As a final statement, if there is anything good that is going to come out of these meetings that you have here -- and I am glad I could make it today -- we were supposed to go to a CD meeting, but I think this is a little more important -- I would suggest that you get a committee of working people. Please don't get names who just want to have their names in the paper again. Get a committee like I set up on this duck problem, people who would drop everything and go off to Albany or anywhere else and work to solve the problem. Get all these people in one room, representing everybody -- conservation, even the political aspects of it -- because, believe me, as Supervisors, we know all the problems, and we would like to answer all these problems, and we want to be a part of it.

I just feel that possibly today maybe one good thing will come out of this meeting, that you will set up a coordinating committee -- call it what you want. Don't make it too big because you are going to have problems, but get people who are workers, and don't get publicity seekers.

Thank you, gentlemen.

MR. STEIN: Thank you very much, sir.

You know, where Mr. Metzler comes from in Kansas, they don't have that "grab the bull by the horns" so much. Out where he comes from they say, "grab the bull by the tail and look the problem square in the face."

(Laughter.)

MR. METZLER: You've got to work on this kind of a problem from both ends.

(Laughter.)

Of course, I am appreciative of this kind of testimony, and with respect to the tools that we have to attack some of these problems, with particular relation to the boat pollution one, we have better tools now than we had here a year ago.

With respect to the detergents, I can't help but make a comment on this point for the detergent. It seems to me all it does is remind you that that water was used before, and I am not sure that I would just as soon be reminded of this, especially where it is occurring in wells. If I get sewage in my well, I think maybe I would like to have a little foam to know that this water has been used before, so I might have a little different idea than you about detergents as such.

But you have put your finger on a very important

C. R. Dominy

problem as far as Long Island is concerned, and that is the matter of human wastes that we are putting back down in the groundwater. We are going to have to do something about this, and this is part of what the comprehensive studies which you and others have worked hard to bring about here, we are hopeful, will give us some solutions to. That is a bad sentence, but I think we are making some progress.

Murray, I don't have any other comments at this point.

MR. STEIN: How about you, Mr. Klashman?

MR. KLASHMAN: No, I don't have any.

MR. STEIN: I think we have proceeded very well.

MR. METZLER: I have an added speaker, if I may, Mr. Charles R. Dominy, Supervisor of the Town of Brookhaven.

STATEMENT OF CHARLES R. DOMINY, SUPERVISOR,
TOWN OF BROOKHAVEN

MR. DOMINY: Gentlemen, I would like to take this opportunity to welcome you here.

My invitation, along with others, I guess, got lost in the United States mails, because it got to me very late.

Unfortunately, the job of Supervisor entails

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other things than coming to meetings, so I did not get here in time. I was not here at all yesterday, but I understand the county was represented by the County Executive, but we most certainly don't agree on a lot of what he says.

(Laughter.)

However, I would like to thank you for coming here and having your conference, because I think it has been very beneficial.

I have heard most of the statements that were made today, before. I am aware of the population growth in the Town of Brookhaven, probably the fastest growing town in the country, let alone the State, and I am sure that we in local government are as aware of these problems as most people would like to say we are not.

I think that the results of your conference can be very beneficial, and I am appreciative that you, the Federal Government and the State government, finally saw fit to get into Great South Bay pollution, because as of December last year, in cooperation with Dr. Leone, after attending the Pure Waters Conference in Albany, we were informed that Great South Bay did not qualify under that particular bill. Under this new setup in the Federal Government, maybe we will qualify and something constructive will be done.

C. R. Dominy

Thank you.

MR. METZLER: I would like to clarify this point: I am a newcomer to New York, as you may not have learned. I have been here three months now, and I am interested in what you were requesting, and how you felt that you did not get a satisfactory answer as far as your need here complying with the provisions of the Pure Waters Program is concerned.

MR. DOMINY: I have a letter. I was told by Dr. Ingraham to contact Dr. Leone of the Suffolk County Health Department.

Dr. Leone is here and he can verify this, because I have the letters here that he wrote and I wrote. We asked, in the first instance, for some of this money to be applied, as Mr. Barbash said this morning, to taking all of these studies that have gathered dust in various libraries and putting them on one table and getting them together and coming up with an answer. We were told, and probably rightfully so, that we did not qualify under the bill as it was then interpreted.

We followed that up with various letters through Dr. Leone's office, because this, as I was told by Dr. Ingraham, was the only avenue of approach, and I have the letters here, if you would like to see them.

MR. METZLER: Was this for a comprehensive sewage

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study?

MR. DOMINY: No, sir.

MR. METZLER: A comprehensive water supply study?

MR. DOMINY: No, sir. This was just to study the pollution problem of Great South Bay that has affected the duck farmers, the oyster growers, clam growers, and everything else, because we have been aware of this problem for several years.

MR. METZLER: I certainly do not want to indicate that you folks have not been aware of this problem.

I am just puzzled, because one of the things that is very constructive about this new set of laws under which we are operating is the concept of comprehensive attack on a problem, not a solution for each individual little waste outlet, but a single solution for a whole group of waste outlets. This is what the studies which are now under way both in the sewage field and in water, are aimed at doing, and I had hoped that these might meet your need.

If they don't, or if there is some area of uncertainty here, some place in which we are failing to be responsive, then I would like afterward, if I could, to visit with you briefly, sir, and find out what these are, so that perhaps we can correct it.

MR. DOMINY: I think your presence here today has

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shown that the interpretation as handed to us in 1965, has been slightly modified, because otherwise you would not be here.

I am very happy that at this late date, I am at least informed of it by a public hearing in the area.

Thank you very much.

MR. STEIN: This is what makes the job so interesting, that we hear these various views.

I do think there is a part of a problem. The Supervisor from Riverhead indicated what the situation is. If we just don't operate like the cattlemen and the sheepmen used to do years ago, and if we can get together and work on this, I think we may very well come up with a solution.

Now, I too am a little puzzled. We work very closely with New York State. The question of getting collated studies and going through the literature is something, if that has not been done, that I know we would both be delighted to support.

In Mr. DeFalco's report, which you heard from the Federal Government, and Mr. Hennigan's report, that you heard from the State, as far as I can see, they both tried to do that.

If this did not cover the field, and if our

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transcript here and what we come out with does not give you a complete compendium and there has to be some more material that has to be gone over, I am sure that Mr. Metzler and we would be most willing to sit down with you, put our resources in and get this done.

MR. DOMINY: I like that expression, because we have been doing just that.

MR. STEIN: Thank you. Are we about set?

MR. DOMINY: I again thank you for coming to the Town of Brookhaven.

MR. STEIN: We thank you.

Now, we do not want to hold you too long, but I think the conferees would like to recess for about ten minutes, after which we will reconvene the conference, when, I believe, we will be able to have a fairly definitive announcement and wrap this up.

We stand recessed for ten minutes.

(Whereupon a recess was had.)

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MR. STEIN: May we reconvene?

I am pleased to announce that the conferees representing the State and the Federal Government have come to unanimous conclusions and recommendations on this matter.

1. The conferees believe, after hearing all the statements and evaluating the testimony, the answers and conclusions, that the waters considered here are polluted.

That the pollution of these waters substantially interferes with the shellfish industry in the shipment and marketing of shellfish in interstate commerce.

That the remedial measures taken to abate the pollution to date have not been adequate, and the nature of delays in abating the pollution shows that they are due to the very complicated nature of the problem and the tremendous growth of the community in terms of population.

The conferees do believe that this problem is amenable to a solution, that we can have multiple uses of the water, and there is nothing to indicate that you cannot have your people, your duck farms or your shellfish people, get together if we all put our minds to it.

I know we have our personal prejudices and our

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backgrounds, but I think if we put our minds to it, you have enough water and enough land and enough resources and enough ingenuity to come up with the solution. You can expect full cooperation from the Federal and State people, but you have to do that.

There is one point I would like to make clear. That is, New York State has a rather good shellfish protection program.

Shellfish from the open waters in this area are perfectly fine and safe. As a matter of fact, I had a half a dozen clams last night myself, and I expect to eat them every chance I get. There is no question about the purity or, in my mind, the palatability of the wonderful clams coming from your open areas.

The question here is whether we can see that the production will grow and open more areas. However, we believe, in order to come up with a solution to the problem, we have to hit the four areas we have talked about before.

1. We must come up with a comprehensive detailed and particular plan and program, including time schedules, to handle the total pollution control problem in this area of Great South Bay. This will include control of pollution from people, domestic sources and other establishments. It will include control of pollution from your kind of unique

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industry here, duck farming. It will include tackling the problem of existing sludge deposits in the Bay and will include tackling the problem of the inlets. I do believe that all of these problems must be hit.

We also must come up and should come up with what is the best solution here. I believe that on the inlets and the removal of sludge, because again these are scientific facts, once they are laid out and aired on the table, we all can agree to do that.

What we are doing is proposing the coordinating committee, but I want to make it very clear that the conferees endorse the New York State orders to abate pollution, both in the time schedule they have incorporated in the orders and the amount and degree of treatment required.

These are primarily, of course, as State orders, to be enforced by the State, but now, in addition, they become Federal requirements. We will work with the State in every way and every manner to enforce them, and we have the authority to do that under Federal law as well.

I know we will not have to do it, that the State will do it under its law; but I should emphasize the orders are in full force and effect. Don't think they are being abrogated or being turned back for a second.

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In addition to this, we do believe that if you are going to take any action on control of inlets, this might be given a little priority in your deliberations, because of the time factor. Mr. Metzler indicated that he would like to have a recommendation by October, so that we can move on that, if possible.

What we are suggesting, and, as a matter of fact, the conferees will put this in effect right now as they speak, is a coordinating committee that consists of State, Federal and local people to analyze the four points that I have come up with, and come up with detailed recommendations on a time schedule on those points in six months.

The committee will consist of Mr. Robert Hennigan of the New York State Department of Health, who will be chairman; Mr. David Wallace, Director of Marine Fisheries in the New York State Conservation Department; a representative of the United States Public Health Service Shellfish Program; Mr. Mark Abelson of the Department of the Interior, who is the Regional Coordinator of the Department for this area, and will represent all the interests of the Department of the Interior, including ours -- the fish and wildlife interests, commercial interests, and so on; a representative of the Duck Growers' Association, who should get together and decide whom you want, because Mr. Hennigan

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will be in touch with you; a representative of the shellfish interests and a representative of the local interests. Our recommendation is that that probably should be Dr. Leone.

I recognize the divergent interests have to get together in a room and come up with detailed plans and specifications.

We want to carry out your program and your blueprint. We will give you the staff, if you need it, and the resources to get your data.

We are just asking that you come up with reasonable determinations and decisions. We are asking within one month that a decision and a recommendation, if possible, be forthcoming from this group on control of inlets, so we don't lose another session of the Congress, and so that the views can be coalesced. We will have all parties -- and I mean all interests -- all political parties -- everyone -- coming from this area and speaking with one voice as to those inlets.

There should be no difference. The way to get this solved is to resolve your differences. I think the differences can be resolved, because the answer to this is not a political one or a difference in a point of view. You all want the same thing. It is a question of coming to a

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scientific determination of how it is best to preserve those inlets to get the maximum amount of water use out of that bay.

As far as I can see, there should be and there is no difference between any of the groups on what you want. It is just a question of how you do it. We are looking for agreement, and we should have that from this group in a month.

In six months, we should have from the group a comprehensive report on what has to be done to clean up the whole integrated plan of pollution -- again, pollution from people, pollution from ducks, the sludge banks or beds in the Bay, and the inlet situation -- all that in six months.

When we get that in six months, the conference will be reconvened here at the call of the chairman. The report again will be made available and we will listen to comments. Then we will see if we can adopt a uniform blueprint to go ahead, a time schedule to go ahead with it. You can be sure as this is being done -- and I suggest this be done for now -- that we will put Federal and State resources behind it and we will help you in every way that the staff will allow and that our technical resources will allow. I think between the State and us we have considerable technical resources. Also, the last thing I am going to mention, more than anything else, there will be financial help.

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Mr. Metzler, do you have anything to say?

MR. METZLER: There is just one thing that I would like to say, other than expressing my appreciation for the patience of not only each of the witnesses who waited for his or her turn, but for those of you who have stayed and listened to the presentations here, and who have already indicated your understanding of the problem and your interest in working constructively to do something about it.

In addition to expressing that appreciation, I do want to point out that this is not just another conference or another hearing. This is an enforcement conference. It is the first step in a legal process that, once started, can be concluded only by a solution of the problem. I am sure that no one underestimates the authority which will put this into effect when Mr. Stein comes here.

I am sure we don't need that authority, but, nevertheless, I hope you will be aware that it is there.

MR. STEIN: Thank you.

Mr. Klashman?

MR. KLASHMAN: No comment.

MR. DOMINY: Far be it from me to be critical of the decision of the committee, but I would like to point out to you gentlemen -- and I am sure you are aware of this --

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that you are dealing with a subdivision of the government known as the Town of Brookhaven, which has an ownership of a good deal of this bay bottom. We have some slight control over it. Also, as a member of the Board of Supervisors, if you have local participation in any types of funds, I would think that possibly someone from local government -- and I am not promoting a job for myself because I have no desire to be on it -- but I think you are omitting a great scope of people of local government, where you are going to have to get some of the backup and support.

I appreciate your money and your interest and all this, but you are still going to have some local participation.

MR. STEIN: Pardon me. Let's continue with this. At least, the thinking that we had was that we were doing just this with Dr. Leone.

MR. DOMINY: Well, sir -- and I think Dr. Leone would be the first to say this -- Dr. Leone representing the Department of Health of Suffolk County has eleven or twelve people to get by before he can commit the county. I would think if this committee is going to be effective, it is going to have to have some of the county or local officials participate, or his job is going to be that much more difficult.

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Dr. Leone, am I putting it fairly?

MR. STEIN: If you are in agreement, do you have any suggestion?

MR. DOMINY: I would like to discuss it. I am not going to offer it right this minute, because it comes a little quickly, but it should be a person of local government.

MR. STEIN: How about you?

MR. DOMINY: I said I would not like to take the job. I have some different plans, but I think we can give you somebody.

MR. STEIN: Let's say that we can modify the suggestion and expand this and have such a representative.

Can we get Mr. Hennigan in touch with you, sir?

MR. DOMINY: Yes, sir.

MR. STEIN: And after you consult, would you make your recommendation to Mr. Hennigan?

MR. DOMINY: I would love to.

MR. STEIN: We would be delighted to have him in the group.

MR. DOMINY: Thank you.

MR. STEIN: All right. This was not because we did not agree with you in principle.

As usual, when you come down from Washington or Albany, if you get all the nuances of the local situation

you are lucky. We did get almost all of them, I think.

Thank you very much.

MR. DOMINY: Thank you.

MR. STEIN: I would again like to thank you all for coming.

I do think we have made tremendous progress in outlining this program. We can, I am sure, if we get to work on this, preserve the waters around here in the Great South Bay for a multiplicity of uses.

I want to tell you this: I have not been here for many, many years. I was overwhelmed by the growth that I saw when I came out. As part of my visit, I just could not go without getting onto your beach and looking at your bay. Those waters are still there, but even visually in off season I saw vestiges and erosions of degradation.

I think this is your great chance. The people are coming and you are not going to stop them. I don't know that we want to stop them.

Unless we make the plans and take the action now, you are going to lose it. Let's all get together and try to do that job.

Thank you very much.

This conference stands adjourned.

(Whereupon, at 12:55 p.m., the conference was adjourned.)

(The following was submitted to be added to the record:)

LONG ISLAND FISHERMEN'S ASSOCIATION

WESTHAMPTON BEACH, L. I., N. Y. 11978

CORNELIUS POILLON, Executive Secretary

Stevens Lane

Westhampton Beach, N. Y. 11978

Te1. 516-288-1141

September 28, 1966

Murray Stein

Assistant Commissioner for Enforcement

Federal Water Pollution Control Administration

Washington, D. C.

Dear Mr. Stein:

I would like to say thanks on behalf of the members of this Association, on the way that the Federal Water Pollution Control Enforcement Conference held in Patchogue, N. Y., was run.

It was my understanding in talking with Mr. Metzler that I could submit a written statement to be included in the official records of the hearing.

Enclosed is the written statement for the records.

Sincerely yours,

/s/ Cornelius Poillon
Executive Secretary

* * *

The Long Island Fishermen's Association, an association representing both the commercial fin and shell fishermen of Long Island, New York, has over the past 30 years been fighting an uphill battle for pollution abatement from all types of pollution being dumped into our marine environment.

The sources of this pollution in Moriches Bay and Great South Bay areas have been well documented by all levels of government and also by independent agencies. The onus of responsibility for the major part of the pollution problem that is most harmful to the shellfish industry has been placed on the duck farms in the area. There are other sources of pollution that are just as harmful to the industry. They all have been well documented: Recreational boats, seepage from cesspools and septic tanks, the sewerage plant at Patchogue, and herbicides and pesticides.

The pollution has caused the large areas of shellfish producing bay bottom to be declared uncertified for the harvesting of shellfish for human consumption. This is also true in other areas in the marine district of the

State of New York in regard to shellfish. This has placed an economic hardship upon the shellfishermen, who in the past operated in these areas.

There is also the side effect of this pollution problem that is most harmful to the shellfish industry, and that is the overfertilization of the water by nutrients such as phosphorus and nitrogen, which induce an excess of water plant life that is most harmful to shellfish.

Cooperation is, I think, a wonderful word in its meaning, and cooperation is needed at all levels of government and industry if we are to get this pollution problem solved and corrected. We have an obligation to our children and their children not to pass on to them this polluted water, but good, clean water, for all to use and enjoy wisely. When and if this pollution condition is corrected in the Moriches and Great South Bays areas with a little cooperation and the expenditures of monies, perhaps we are setting the general pattern for all pollution abatement throughout this country of ours.

In closing I would like to point out that this Association is not in favor of another inlet cut through the barrier beach opposite Patchogue, as no one knows what damage could or would happen to the existing shellfish beds in Great South Bay.

Let's all work together, and with cooperation the pollution problem can be overcome.

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